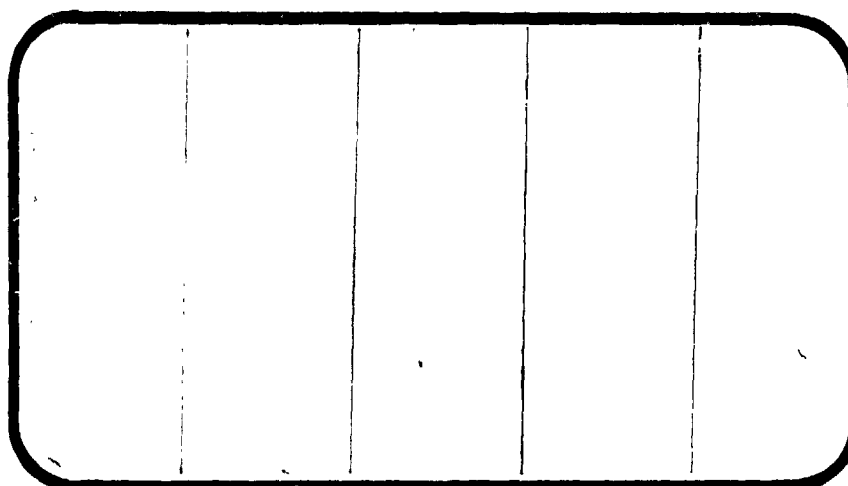




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(NASA-CR-141549) REENTRY STATIC STABILITY  
CHARACTERISTICS OF A (MODEL 471)  
.005479-SCALE 146-INCH SOLID ROCKET BOOSTER  
TESTED IN THE NASA/MSFC 14 BY 14 INCH TWT  
(SA8F) (Chrysler Corp.) 897 p HC \$19.25

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**SPACE SHUTTLE**

**AEROTHERMODYNAMIC DATA REPORT**



**JOHNSON SPACE CENTER**

**HOUSTON, TEXAS**

**DATA Management services**

**SPACE DIVISION**



**CHRYSLER  
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REENTRY STATIC STABILITY CHARACTERISTICS OF A  
(MODEL 471) .005479-SCALE 146-INCH SOLID ROCKET  
BOOSTER TESTED IN THE NASA/MSFC 14 x 14 INCH TWT  
(SA8F)

by

J. D. Johnson, MSFC  
W. F. Braddock, Sarat C. Praharaj, NSI

Prepared under NASA Contract Number NAS9-13247

by

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National Aeronautics and Space Administration  
Houston, Texas



WIND TUNNEL TEST SPECIFICS:

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NASA Series Number: SA8F  
Model Number: MSFC Model 471  
Test Dates: Oct. 18 - Nov. 14, 1974  
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Occupancy Hours: 247

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REENTRY STATIC STABILITY CHARACTERISTICS OF A (MODEL 471)

.005479-SCALE 146-INCH SOLID ROCKET BOOSTER

TESTED IN THE NASA/MSFC 14 x 14 INCH TWT (SA8F)

by

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ABSTRACT

A force test of a 0.5479 percent scale model of the Space Shuttle Solid Rocket Booster (SRB) was conducted at the Marshall Space Flight Center 14 x 14 inch Trisonic Wind Tunnel. The test, TWT 604 (NASA Series No. SA8F), occupied the tunnel for 247 hours (Oct. 18, 1974, through Nov. 14, 1974, and Nov. 25, 1974, through Dec. 11, 1974). Runs totaled 458. Mach numbers were 0.4, 0.5, 0.6, 0.8, 0.9, 1.0, 1.2, 1.96, 2.74, 3.48, 4.00, and 4.45; angles of attack ranged from -10 to 190 degrees; Reynolds numbers ranged from 5.2 to 7.0 million per foot; roll angles were 0, 45, 90, 135, 180, 225, 270, 315 degrees. The model was tested with such protuberances as the camera capsule, electrical tunnel, attach rings, aft separation rockets, ET attachment structure, and hold-down struts. The model was also tested with the nozzle at gimbal angles of 0, 2.5, and 5 degrees. The influence of a unique heat shield configuration was also determined. Some photographs of model installations in the tunnel were taken. Schlieren photographs were taken of selected configurations at several angles of attack.

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CNM, CLMM, CA, XCP/L, CYM, CYNM, CBL vs ALPHA			

## INTRODUCTION

The wind tunnel test described herein is a continuation of a series of tests that are being conducted to establish the static stability characteristics of the Space Shuttle Solid Rocket Booster (SRB) during reentry. This test was conducted on a 0.5479 percent model of the full scale 146 inch SRB configuration and provides data for the updated baseline SRB configuration described in reference (1). The basic model configurations investigated were as follows:

1. SRB with "CLEAN" attach ring and aft ring (but without protuberances).
2. SRB with all protuberances.
3. SRB with "CLEAN" attach ring and aft ring (but without protuberances) with nose cap removed.
4. SRB with "CLEAN" attach ring and aft ring (but without protuberances) for different nozzle gimbal angles.
5. SRB with all protuberances but without the heat shield.

During this test, data were obtained at Mach numbers from 0.4 to 4.45, angles of attack from -10 to 190 degrees, roll angles from 0 to 315 degrees, Reynolds numbers from 0.2 to 0.46 million.

Other tests which have been conducted to determine static aerodynamic stability characteristics of earlier SRB configurations are: TWT 541, TWT 554, TWT 565, TWT 572, TWT 578, TWT 590 and 595, LaRC 8' TPT Test 655 and 662, LaRC UPWT Test 1087, and Lewis Test 035 (references (2) through (10) respectively).

# NOMENCLATURE

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>	<u>UNITS</u>
$A_{b1}$		Base area of nozzle	in. <sup>2</sup>
$A_{b2}$		Base area of nose cavity	in. <sup>2</sup>
$A_{b3}$		Exposed base area of shroud (i.e. base area of shroud less base area of nozzle)	in. <sup>2</sup>
AF		Abbreviation for axial force	
B.C.		Abbreviation for balance center	
$C_A$	CA	Total axial force coefficient in the body axis system	
$C_{Ab}$	CAB	Base axial force coefficient (same in both missile and body axis systems, see section on Data Presentation)	
$C_{Am}$	CA	Total axial force coefficient in the missile axis system, $F_{Am}/q_\infty S_{ref}$	
$C_\ell$	CBL	Rolling moment coefficient in the body axis system	
$C_{\ell m}$	CBL	Rolling moment coefficient in the missile axis system, $M_{\ell m}/q_\infty S_{ref} \ell_{ref}$	
$C_m$	CLM	Pitching moment coefficient in the body axis system	
$C_{mm}$	CLMM	Pitching moment coefficient in the missile axis system, $M_{ym}/q_\infty S_{ref} \ell_{ref}$	
$C_N$	CN	Normal force coefficient in the body axis system	
$C_{Nm}$	CNM	Normal force coefficient in the missile axis system, $F_{Nm}/q_\infty S_{ref}$	
$C_n$	CYN	Yawing moment coefficient in the body axis system	
	BREF	Reference span (diameter of the cylindrical section of the model)	

# NOMENCLATURE (CONTINUED)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>	<u>UNITS</u>
$C_{n_m}$	CYNM	Yawing moment coefficient in the missile axis system, $M_{Z_m}/q_{\infty} S_{ref} l_{ref}$	
$C_{p_{bi}}$	CPB	Base pressure coefficient; $\frac{P_{bi} - P_{\infty}}{q_{\infty}}, i = 1, 2, 3$	
$C_Y$	CY	Side force coefficient in the body axis system	
$C_{Y_m}$	CYM	Side force coefficient in the missile axis system, $F_{Y_m}/q_{\infty} S_{ref}$	
$F_{A_m}$		Total axial force in the missile axis system, positive in the negative direction of $X_m$	lb
$F_{N_m}$		Normal force in the missile axis system, positive in the negative direction of $Z_m$	lb
$F_{Y_m}$		Side force in the missile axis system, positive in the positive direction of $Y_m$	lb
$l_{body}$		Length of the body	in.
$l_{ref}$	LREF	Reference length (diameter of the cylindrical section of the model)	in.
$M$	MACH	Mach number	
$M_{X_m}$		Rolling moment in the missile axis system, i.e., moment about the $X_m$ -axis (a positive rolling moment tends to rotate the positive $Y_m$ -axis toward the positive $Z_m$ -axis)	in.-lb
$M_{Y_m}$		Pitching moment in the missile axis system, i.e., moment about the $Y_m$ -axis (a positive pitching moment tends to rotate the positive $Z_m$ -axis toward the positive $X_m$ -axis)	in.-lb
$M_{Z_m}$		Yawing moment in the missile axis system, i.e., moment about the $Z_m$ -axis (a positive yawing moment tends to rotate the positive $X_m$ -axis toward the positive $Y_m$ -axis)	in.-lb
MRP		Abbreviation for moment reference point	



# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>	<u>UNIT</u>
NF		Abbreviation for normal force	
$P_{bi}$		Base pressures	psi
$P_t$		Free stream total pressure	psi
$P_\infty$		Free stream static pressure	psi
PM		Abbreviation for pitching moment	
$q_\infty$		Free stream dynamic pressure	psi
$R_N$		Reynolds number based on $l_{ref}$	
$R_N/ft$	RN/L	Reynolds number per unit length	million/ft
RM		Abbreviation for rolling moment	
$S_{ref}$	SREF	Reference area (cross sectional area of the cylindrical section of the model)	in. <sup>2</sup>
SF		Abbreviation for side force	
$T_t$		Tunnel total temperature	°F
X,Y,Z		Body axes system coordinates (for an airplane, the X, Z-plane is the plane of symmetry, the origin of the axes system is the center of gravity or any other convenient point, and the X axis is the airplane longitudinal axis)	
$X_{cp}/l$	XCP/L	Center of pressure location from nose divided by body length; $\frac{X_{MRP}}{l_{body}} - \frac{C_{mm}}{C_{Nm}} \frac{l_{ref}}{l_{body}}$	
$X_m, Y_m, Z_m$		Missile axis (see text and Figure 17)	
XMRP	XMRP	Abbreviation for the location of the moment reference point measured from the nose	in.

# NOMENCLATURE (Concluded)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>	<u>UNITS</u>
YM		Abbreviation for yawing moment	
$\alpha$		Angle of attack	degrees
$\alpha_t$	ALPHA	Total angle of attack, angle between the $X_m$ -axis and a vector in the direction of the air flow	degrees
$\beta$	BETA	Angle of sideslip	degrees
$\delta_N$	NOZZLE	Deflection angle of the SRB nozzle from the SRB longitudinal centerline in the X-Z plane, positive in the direction to align the SRB nozzle with the undisturbed airstream	degrees
$\phi$	PHI	Roll angle, i.e., angle between the missile $Y_m$ -axis and the body Y-axis (from a pilot's viewpoint in an air-plane, a positive roll angle is a clockwise rotation)	degrees
	XS,YS,ZS	Reference dimension system for the SRB in the X, Y, and Z directions	in.

## SUBSCRIPTS

b	Base
c.g.	Center of gravity
i	Identifies the location of the base pressure measurements
m	Missile axis system
ref	Reference conditions
t	Total conditions
•	Free stream conditions

## TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum section and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo-actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle-of-attack range of 20° (+10°). Sting

offsets are available for obtaining various maximum angles of attack up to 25°.

The diffuser section has movable floor and ceiling panels which are the primary means of controlling the subsonic Mach numbers and permit more efficient running supersonically. The sector assembly and supersonic diffuser telescope into the subsonic diffuser to allow easy access to the model and test section.

Tunnel flow is exhausted through an acoustically damped tower to atmosphere or into the vacuum field of 42,000 cubic feet. The vacuum tanks are evacuated by vacuum pumps driven by electric motors rated at a total of 500 hp.

Data are recorded by a solid-state digital data acquisition system. The digital data are transferred to punched cards during the run to be reduced later by a computer to proper coefficient form.

A comprehensive description of the test facility is presented in reference (11).

## MODEL DESCRIPTION AND SUPPORT HARDWARE

### Model Description

The model, MSFC Model 471, is a 0.5479 percent scale model of a 146-inch diameter right-hand SRB. Details of the model are given in Figure 1. Figure 2 shows the location of the right-hand SRB in the Space Shuttle launch configuration. The SRB consists of a spherically blunt  $18^\circ$  half angle nose cone, a cylindrical body, engine shroud, engine nozzle and protuberances. The protuberances are as follows:

1. Data capsule
2. ET attachment structure
3. Electrical tunnel
4. ET attachment rings (one CLEAN and one with protuberances)
5. Aft ring
6. Aft separation rockets
7. Hold down struts

Details of protuberances are given in Figures 3 and 4.

Some of the important design features of the model are the following:

- o The model was made in four parts: nose, body, engine shroud, and nozzle. Nozzles with different gimbal angles could be changed by merely removing four set-screws which fix the nozzle to the Engine Shroud Section.
- o Nose and base sections are interchangeable for testing at angles of attack below and above  $90^\circ$ .

- o There are two cylindrical bodies: one used for nose and tail mount configurations and the other, made in two parts, with a hole in the side for side mount configurations. Both bodies remain mounted in the same position with respect to the balance. When nose and base are interchanged, the distance from the nose to the balance center changes slightly. This is illustrated in Figure 5.
- o The attachment rings, one of which was fixed to the body throughout the test, have mounting locations on each end of both bodies so they can maintain their position relative to the nose and engine. A "CLEAN" slotted ring was necessary for the side mount model installation in the tunnel.
- o Roll angles were changed in the case of nose and tail mounts, by rotating the whole body about the balance axis and in the case of side mount by rotating the nose, engine/shroud section and mounting the electrical tunnel and attach ring at different angular locations on the body.
- o In all model installations, except in the case of tail-mount conditions, a plug was used to close the 0.641 inch diameter cavity inside the body in order to eliminate flow through the balance cavity. A cross section drawing of the nozzle cavity and body plug is presented in Figure 6.
- o Three different nozzle configurations were used during the test. One was a straight nozzle with no deflection (see Figure 6). Two deflected nozzles, with gimbal angles of 2.5 and 5.0 degrees, were

also used. A schematic drawing of a deflected nozzle is presented in Figure 7. The effective pivot point was located 0.626 inch from the nozzle exit plane. When used, the heat shield was attached to the nozzle as shown; therefore, it gimballed with the nozzle.

- o Three nose sections were used for the test. One was a complete nose cone used for the model when it was tail-mounted and side-mounted. The second nose cone was truncated and was used to simulate the SRB configuration after drogue chute deployment. The third one had a through hole of 0.625 inch diameter, necessary for sting passage when the model was nose-mounted.

#### Support Hardware Description

The test model (MSFC 471) was designed to be used in conjunction with the MSFC 14-Inch TWT double knuckle sting system. When the included angle between the model and tunnel centerline was in the range  $\alpha_t = 0^\circ$  to  $50^\circ$  and  $\alpha_t = 130^\circ$  to  $180^\circ$ , the model was tail- and nose-mounted, respectively, on balance adapters 80M42509 and 113. For angles in the range  $\alpha_t = 50^\circ$  to  $130^\circ$ , the model was side-mounted on balance adapter 118. Since the nose and base sections of the model are interchangeable, testing from  $\alpha_t = 0^\circ$  to  $50^\circ$  and  $\alpha_t = 50^\circ$  to  $90^\circ$  with the nose facing upstream and  $\alpha_t = 130^\circ$  to  $190^\circ$  and  $\alpha_t = 90^\circ$  to  $130^\circ$  with the nose facing downstream were accomplished with the same sting and balance setup. Along with the balance adapters 80M42509, 113 and 118, sting adapters 1 and 3 were utilized, respectively. The angle of attack ranges, sting arrangements and

adapters are summarized in Table I. Figures 8 and 9 present sketches of the two support hardware setups. Figures 10, 11, 12, and 13 are photographs of typical model installations.

The model and sting combinations have been designed to keep the model out of the tunnel boundary layer and centered as close as practicable in the test section.

Typical model-balance-adapter setups for the entire range of angle of attack are presented in Figures 14 and 15.



## CONFIGURATIONS INVESTIGATED

The run schedule is presented in Table II and contains the data set collation identifiers for the test and gives the nominal conditions at which various configurations were tested. These conditions are angle of attack ( $\alpha_t$ ), roll angle ( $\phi$ ), nozzle gimbal angle ( $\delta_N$ ), Mach number ( $M$ ), and free stream total pressure ( $P_t$ ).

The tunnel conditions are presented in Table III for the desired Mach numbers along with balance capacities.

The different configurations indicated in Table II are as follows:

1. SRB with "CLEAN" attach ring and aft ring (but without protuberances).
2. SRB with all protuberances.
3. SRB with "CLEAN" attach ring and aft ring (but without protuberances) with nose cap removed.
4. SRB with "CLEAN" attach ring and aft ring (but without protuberances) for different nozzle gimbal angles.
5. SRB with all protuberances but without the heat shield.

## DATA ACQUISITION AND REDUCTION

Parameters measured and recorded during the test were as follows:

1. Tunnel conditions ( $P_t$ ,  $P_\infty$ ,  $T_t$ )
2. Sting attitude
3. Base and cavity pressures (for  $-10^\circ \leq \alpha_t \leq 50^\circ$  and  $130^\circ \leq \alpha_t \leq 180^\circ$  only)
4. Six-component force and moment data.

Tunnel conditions were used to calculate the Mach number, the dynamic pressure and the Reynolds number; the sting attitude with deflection calibrations were used to calculate the model angle of attack; the base pressures were used to calculate base pressure coefficients; and the six-component force and moment data (measured by MSFC balance number 239) were used to calculate static aerodynamic stability coefficients.

The force and moment data were corrected for model weight tares but not flow angularity.

Three base pressures were measured for angles of attack from -10 to 50 degrees and three nose cavity pressures were measured for angles from 130 to 190 degrees. Location of base pressure tubes and nose cavity pressure tubes are indicated in Figure 16. A tabulation of the base pressure coefficients ( $C_{p_{b1}}$ ) is included in the appendix of this report.

All model force and moment data obtained from the six-component balance were resolved in the missile axis system and presented in the form of nondimensional coefficients. These coefficients, defined in the

nomenclature of this report, are  $C_{N_m}$ ,  $C_{m_m}$ ,  $C_{A_m}$ ,  $C_{Y_m}$ ,  $C_{n_m}$  and  $C_{\ell_m}$ . Figure 17 illustrates the missile axis system ( $X_m$ ,  $Y_m$ ,  $Z_m$ ). The missile axis system is a non-rolling body axis system that is frequently used in wind tunnel tests and studies of missile flight dynamics. It is a system of axes that does not rotate about the missile or model longitudinal axis and is identical with the body axis system at zero roll angle.

Six-component static aerodynamic coefficients in the missile axis system may be converted to coefficients in the body axis system by using the following equations:

$$\text{Normal Force: } C_N = C_{N_m} \cos \phi + C_{Y_m} \sin \phi$$

$$\text{Pitching Moment: } C_m = C_{m_m} \cos \phi + C_{n_m} \sin \phi$$

$$\text{Axial Force: } C_A = C_{A_m}$$

$$\text{Side Force: } C_Y = C_{Y_m} \cos \phi - C_{N_m} \sin \phi$$

$$\text{Yawing Moment: } C_n = C_{n_m} \cos \phi - C_{m_m} \sin \phi$$

$$\text{Rolling Moment: } C_{\ell} = C_{\ell_m}$$

The reference dimensions used to calculate the static stability coefficients are summarized in Table IV.

If base axial force coefficients are desired, the equations to be used are:

$$C_{Ab} = - \frac{A_{b1}}{S_{ref}} C_{p_{b1}} - 0.5 \frac{A_{b3}}{S_{ref}} C_{p_{b2}} - 0.5 \frac{A_{b3}}{S_{ref}} C_{p_{b3}}, \quad -10^\circ \leq \alpha_t \leq 50^\circ$$

(Tail Mount)

$$C_{Ab} = 0.5 \frac{A_{b2}}{S_{ref}} C_{p_{b1}} + 0.25 \frac{A_{b2}}{S_{ref}} C_{p_{b2}} + 0.25 \frac{A_{b2}}{S_{ref}} C_{p_{b3}}, \quad 130^\circ \leq \alpha_t \leq 190^\circ$$

(Nose Mount)

The base areas are listed in Table IV.

## DATA PRESENTATION

Data are presented in two forms: (1) aerodynamic static stability data are plotted as a function of angle of attack and (2) data tables are presented in the appendix.

### Data Plots

The plots of aerodynamic stability coefficients and center of pressure location are presented in the following groups.

- o Static stability characteristics of SRB with clean attach and aft rings.
- o Static stability characteristics of SRB with all protuberances.
- o Effect of RN on SRB static stability characteristics.
- o Effect of nose cap on SRB static stability characteristics.
- o Effect of nozzle gimbal angle on SRB static stability characteristics.
- o Effect of heat shield on SRB static stability characteristics.

Table V presents a summary of the Mach numbers and type of aerodynamic data plots that are available for each of the above configurational data plot groups. Each plot contains information that describes the dataset symbol, the configuration description, roll angle, Mach number and reference information.

Several datasets were joined to form a single dataset that has a combined angle of attack sweep of all the joined datasets. As an example, dataset R1H001, which has an alpha range from  $-10^\circ$  to  $10^\circ$ , was joined with datasets R1H002 (alpha range  $10^\circ$  to  $30^\circ$ ) and R1H003 (alpha range  $30^\circ$  to  $50^\circ$ ) to form a single dataset, ALPHA01 with a total alpha range from  $-10^\circ$  to  $50^\circ$ . Table VI delineates all the joined datasets.

#### Data Tables

In the appendix are data tables for each of the 458 runs, presented in order of the dataset number. Each table contains a listing of the six static stability coefficients, three base pressure coefficients, and center of pressure location. Each table also contains information that describes the model configuration, the model attitudes, the tunnel flow conditions, and model reference dimensions.

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9. Johnson, J. D., and Braddock, W. F., "Reentry Aerodynamic Characteristics of a Space Shuttle Solid Rocket Booster (MSFC Model 454) at High Angles of Attack and High Mach Number in the NASA/Langley Four-foot Unitary Plan Wind Tunnel (SA25F)," NASA CR-141,511, February 1975.
10. Johnson, J. D., Burstadt, P. L. and Radford, W. D., "Aerodynamic Characteristics of MSFC Model 454 of the 142-Inch Solid Rocket Booster Tested in the LeRC 10-foot SWT at Mach Numbers of 2.0 and 2.7 (SA6F)," NASA CR-134,422, January 1975.
11. Simon, Erwin, "The George C. Marshall Space Flight Center's 14 x 14-Inch Trisonic Wind Tunnel Technical Handbook," NASA TMX-64624, November 5, 1971.



Table I  
ALPHA SCHEDULE AND STING COMBINATION NOMENCLATURE

$\alpha_t$ SCHEDULE	$\alpha_t$ RANGE**	NOMINAL PREBEND ANGLE, DEG.	STING NUMBER	STING ADAPTER NO.	HOLE	BALANCE ADAPTER NO.	HOLE
A	-10°-10°	0	1	1	53	113	1
B	10°-30°	20	1	1	51	113	3
C	30°-50°	40	1	1	54	113	4
D	50°-70°	60	3	3	63	113	A-3
E	70°-90°	80	3	3	61	118	A-2
*F	80°-100°	90	3	3	61	118	A-1
*G	90°-110°	80	3	3	61	118	A-2
*H	110°-130°	60	3	3	63	113	A-3
*I	130°-150°	40	1	1	54	113	4
*J	150°-170°	20	1	1	51	113	3
*K	170°-190°	0	1	1	53	113	1

\*Model nose and base sections are interchanged for these setups.

\*\*Alpha ranges were run in 2° increments.

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(OF POOR QUALITY

MSFC Form 263-3 (Rev. May 1973)  
\*Indicates stagnation pressure at  $M=0.04$  only ( $P_{t,1}$  is 20 psi,  $P_{t,2}$  low is 10 psi). See Table III for stagnation pressures for all other Mach numbers.

Table II. (Continued)

[illegible]

Table II. (Continued)

[illegible]

MSFC - Form 263-2 (Rev. May 1973)

\*P<sub>t</sub> designation is applicable only to M=0.4. All other Mach numbers were run at only one value of P<sub>t</sub>. See Table III.

Table II. (Continued)

TEST : MSFC TWT604(SARF)															DATE : OCT - DEC 74														
DATA SET IDENTIFIER			CONFIGURATION			SCHD. PARAMETERS/VALUES			NO. OF RUNS			MACH NUMBERS																	
			$\alpha$ $\beta$ $\delta_N$			$P_c$ *						0.4	0.6	0.9	1.2	1.96	2.74	3.48	4.45										
TEST RUN NUMBERS																													
SRB WITH ALL																													
R1H023	PROTRUBERANCES		A 0° 0°						2												197% 196%								
024			B T						1												195%								
025			C						2												183% 182%								
026			E						HIGH 7			383%	382%	381%	384%	385%	386%	387%											
027			G						6			292%	293%	294%	295%	301%	302%												
028			H						7			298%	298%	297%	296%	309%	303%	304%											
029			I						7			45%	46%	47%	48%	106%	26%		25%										
030			J						8			93%	94%	95%	96%	97%	18%	19%	20%										
031			K Y						7			52%	51%	50%	49%	107%	2%		1%										
032			A 45°						1												198%								
033			C						1												184%								
034			E						HIGH 7			394%	393%	392%	391%	390%	389%	388%											
035			H						7			365%	364%	363%	362%	361%	360%	359%											
Y 036	Y		J Y Y						7			92%	91%	90%	89%	98%	22%	21%											
COEFFICIENTS																													
α OR β																													
SCHEDULES																													
IDVAR (1) IDVAR (2) NDV																													
75.76																													

Table II. (Continued)

TEST: MSFC TWT 604 (SABF)

DATE: OCT - DEC 74

DATA SET / RUN NUMBER COLLATION SUMMARY

DATA SET IDENTIFIER	CONFIGURATION	SCHD.	PARAMETERS VALUES		NO. OF RUNS	MACH NUMBERS												
			$\phi$	$\delta_N$		Pc	0.4	0.6	0.9	1.2	1.96	2.74	3.48	4.45				
R1H 037	SRB WITH ALL PROTRUBERANCES	A	90°	0°	2													
038	B	T			1													
039	C				2													
040	E	HIGH			7	395%	396%	397%	398%	399%	400%	401%						
041	G				6	317%	316%	315%	314%	308%	307%							
042	H				7	310%	311%	312%	313%	309%	306%	305%						
043	I				7	44%	43%	42%	41%	105%	27%							
044	J				8	85%	86%	87%	88%	99%	17%	16%						
045	K	V			7	53%	54%	55%	56%	108%	3%							
046	A 135°				1							201%						
047	C	T			1							187%						
048	E				7	408%	407%	406%	405%	404%	403%	402%						
049	H				7	352%	353%	354%	355%	354%	357%	358%						
V050	J	V			7	84%	83%	82%	81%	100%	23%	24%						

COEFFICIENTS

1731925313743495561677376

a OR b

CONFERENCES

10VAR (1) 10VAR (2) NDV

Table II. (Continued)

[illegible]

Table II. (Continued)

[illegible]



[illegible]

Table II. (Concluded)

TEST : MSFC TWT 604(SABF)

DATE : OCT - DEC 74

DATA SET / RUN NUMBER COLLATION SUMMARY

DATA SET IDENTIFIER	CONFIGURATION	SCHD.	PARAMETERS/VALUES		NO. OF RUNS	MACH NUMBERS								FOR ALTERNATE INDEPENDENT VARIABLE
			$\alpha$	$\beta$		0.4	0.6	0.9	1.2	1.96	3.48			
	SRB WITH ALL													
	PROTUBERANCES													
R1N084	(MINUS HEAT SHIELD)	G 0° 0°			2									
085		H T			3		370%	369%						
086		I T			5		366%	367%	453%	439%	459%			
087		J Y			4		451%	452%		449%	449%			
088		G 90°			2		371%	372%						
089		H T			3		374%	373%	375%	442%	447%			
090		I T			4				456%	442%	447%			
091		J Y			3		458%			441%	448%			
092		G 180°			2		379%	389%						
093		H T			3		378%	377%	376%	459%	443%	446%		
094		I T			3					459%	443%	446%		
Y 095	Y	J Y			2						444%	445%		

17131925313743495561677576

COEFFICIENTS10VAR (1)10VAR (2)NDV

$\alpha$  OR  $\beta$

SCHEDULES

Table III  
TEST CONDITIONS AND BALANCE CAPABILITY

TEST: TWT 604			DATE: Oct. 18, 1974	
<b>TEST CONDITIONS</b>				
MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)	STAGNATION PRESSURE (pounds/sq. inch)
0.40	$3.00 \times 10^6/\text{ft}$	1.85	100	18
0.40	5.40	3.33	100	32
0.50	4.00	2.50	100	22
0.60	4.95	4.35	100	22
0.80	5.90	6.49	100	22
0.90	6.25	7.37	100	22
1.00	6.50	8.14	100	22
1.20	6.62	9.14	100	22
1.96	6.92	10.02	100	28
2.74	4.70	6.36	100	30
3.48	6.96	6.36	100	60
4.00	6.30	5.53	100	75
4.45	5.20	3.83	100	75

BALANCE UTILIZED: MSFC 239

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE: $q_\infty = 10 \text{ psi}$
NF	<u>200 lbs.</u>	<u><math>\pm 1.0 \text{ lb.}</math></u>	<u><math>\pm 0.2</math></u>
SF	<u>100 lbs.</u>	<u><math>\pm 0.5 \text{ lb.}</math></u>	<u><math>\pm 0.1</math></u>
AF	<u>50 lbs.</u>	<u><math>\pm 0.25 \text{ lb.}</math></u>	<u><math>\pm 0.05</math></u>
PM	<u>196 in.-lbs.</u>	<u><math>\pm 1.0 \text{ in.-lb.}</math></u>	<u><math>\pm 0.25</math></u>
RM	<u>98 in.-lbs.</u>	<u><math>\pm 0.5 \text{ in.-lb.}</math></u>	<u><math>\pm 0.125</math></u>
YM	<u>50 in.-lbs.</u>	<u><math>\pm 0.25 \text{ in.-lb.}</math></u>	<u><math>\pm 0.063</math></u>

COMMENTS: Accuracy based on  $\pm 0.5\%$  of balance capacity

**TABLE IV**  
**REFERENCE DIMENSIONS**

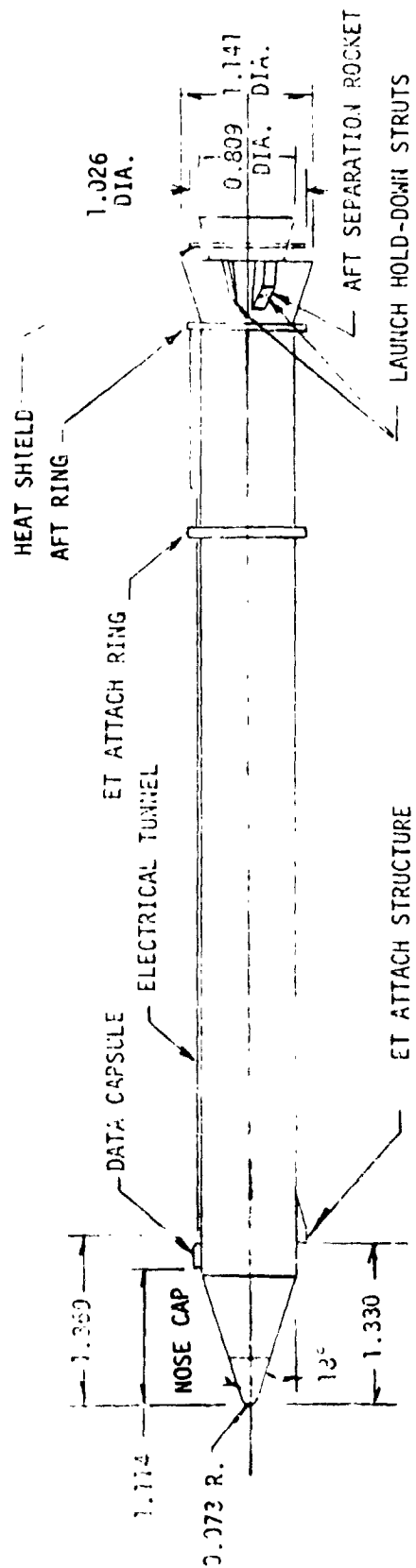
PARAMETER	FULL SCALE	MODEL SCALE
Reference Area, $S_{ref}$	115.261 ft. <sup>2</sup>	0.503 in. <sup>2</sup>
Reference Length, $l_{ref}$	146 in.	0.800 in.
Moment Reference Point XMRP (from Nose)	1044 in.	5.721 in.
Base Areas		
Nozzle Exposed Area $A_{b1}$	118.893 ft. <sup>2</sup>	0.514 in. <sup>2</sup>
Nose Cavity Area $A_{b2}$	N/A	0.323 in. <sup>2</sup>
Shroud Exposed Area $A_{b3}$	117.527 ft. <sup>2</sup>	0.508 in. <sup>2</sup>

Table V. PLOT SUMMARY

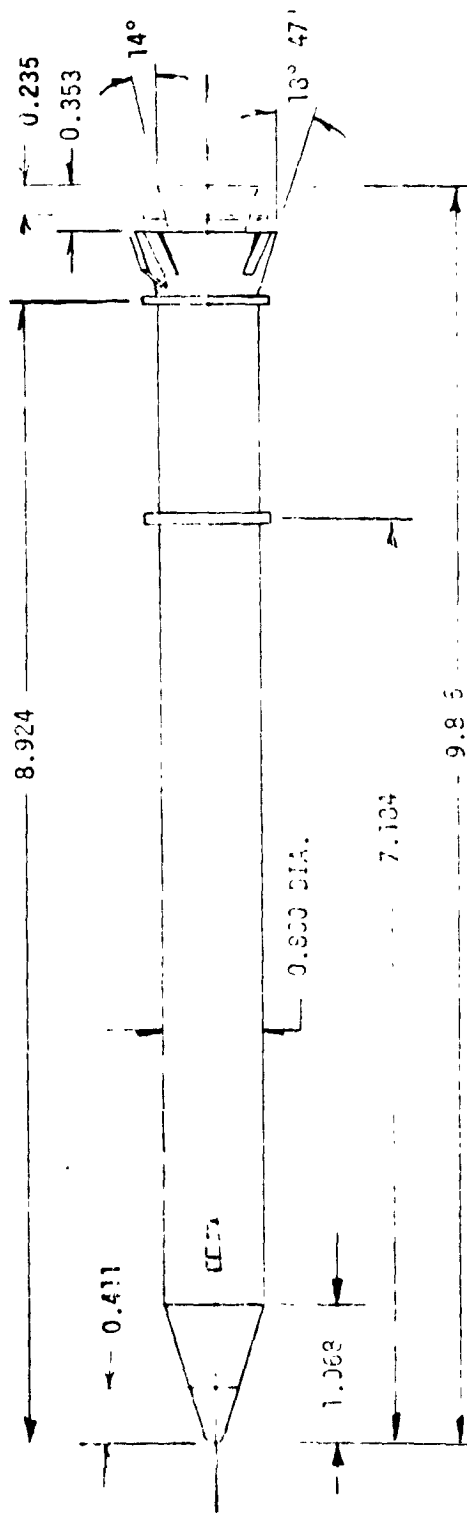
PLOT GROUP	DATA PLOTTED			MACH NUMBERS											
	LONG. COEFF.	LAT. COEFF.	$X_{cp}/\ell$	0.4	0.5	0.6	0.8	0.9	1.0	1.2	1.96	2.74	3.48	4.00	4.45
SRB with CLEAN attach and aft rings	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SRB with all protuberances	X	X	X	X		X		X		X	X	X			X
Effect of RN	X	X	X	X											
Effect of nose cap	X		X	X	X	X									
Effect of nozzle gimbal angle	X		X			X		X		X	X	X			
Effect of heat shield	X	X	X	X		X		X		X	X		X		

TABLE VI. JOINED DATASET SCHEDULE

JOINED DATASET	DATASETS JOINED	JOINED ALPHA RANGE
AlHA01	AlH001 + AlH002 + AlH003	-10° to 50°
AlHB01	AlH004 + AlH006	50° to 90°
AlHC01	AlH011 + AlH012	90° to 130°
AlHD01	AlH016 + AlH018 + AlH019	130° to 190°
AlHC02	AlH021 + AlH022	90° to 130°
AlHA03	AlH023 + AlH024 + AlH025	-10° to 50°
AlHC03	AlH027 + AlH028	90° to 130°
AlHD03	AlH029 + AlH030 + AlH031	130° to 190°
AlHA04	AlH032 + AlH033	-10° to 10°, 30° to 50°
AlHA05	AlH037 + AlH038 + AlH039	-10° to 50°
AlHC05	AlH041 + AlH042	90° to 130°
AlHD05	AlH043 + AlH044 + AlH045	130° to 190°
AlHA06	AlH046 + AlH047	-10° to 10°, 30° to 50°
AlHA07	AlH051 + AlH052 + AlH053	-10° to 50°
AlHC07	AlH055 + AlH056	90° to 130°
AlHD07	AlH057 + AlH058 + AlH059	130° to 190°
AlHA08	AlH063 + AlH064 + AlH065	-10° to 50°
AlHC08	AlH067 + AlH068	90° to 130°
AlHD08	AlH069 + AlH070 + AlH071	130° to 190°
AlHD09	AlH075 + AlH076 + AlH077	130° to 190°
AlHD10	AlH081 + AlH082 + AlH083	130° to 190°
AlHC11	AlH084 + AlH085	90° to 130°
AlHD11	AlH086 + AlH087	130° to 170°
AlHC12	AlH088 + AlH089	90° to 130°
AlHD12	AlH090 + AlH091	130° to 170°
AlHC13	AlH092 + AlH093	90° to 130°
AlHD13	AlH094 + AlH095	130° to 170°



ALL DIMENSIONS IN INCHES



.005479 SCALE

Figure 1. GENERAL ARRANGEMENT OF SRB MODEL

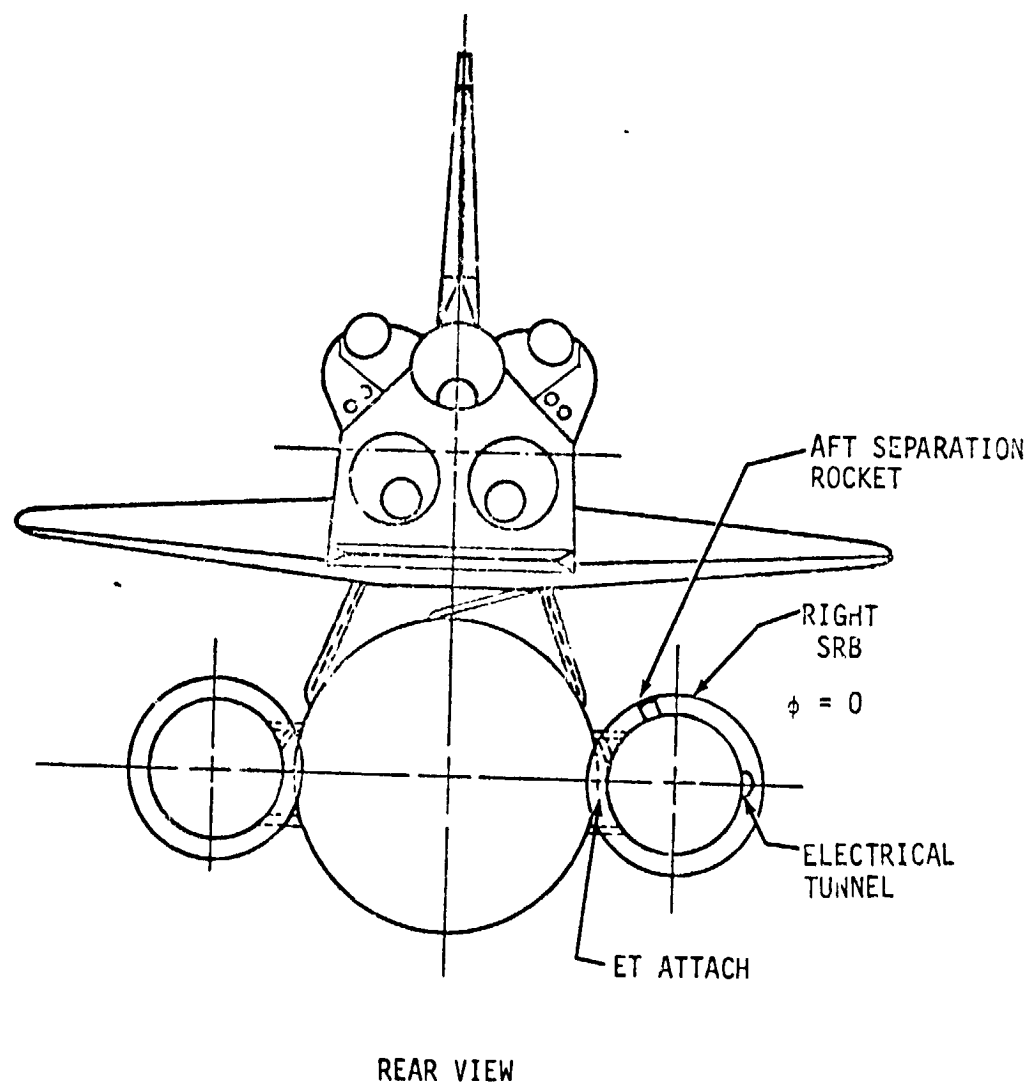


Figure 2. SPACE SHUTTLE LAUNCH CONFIGURATION



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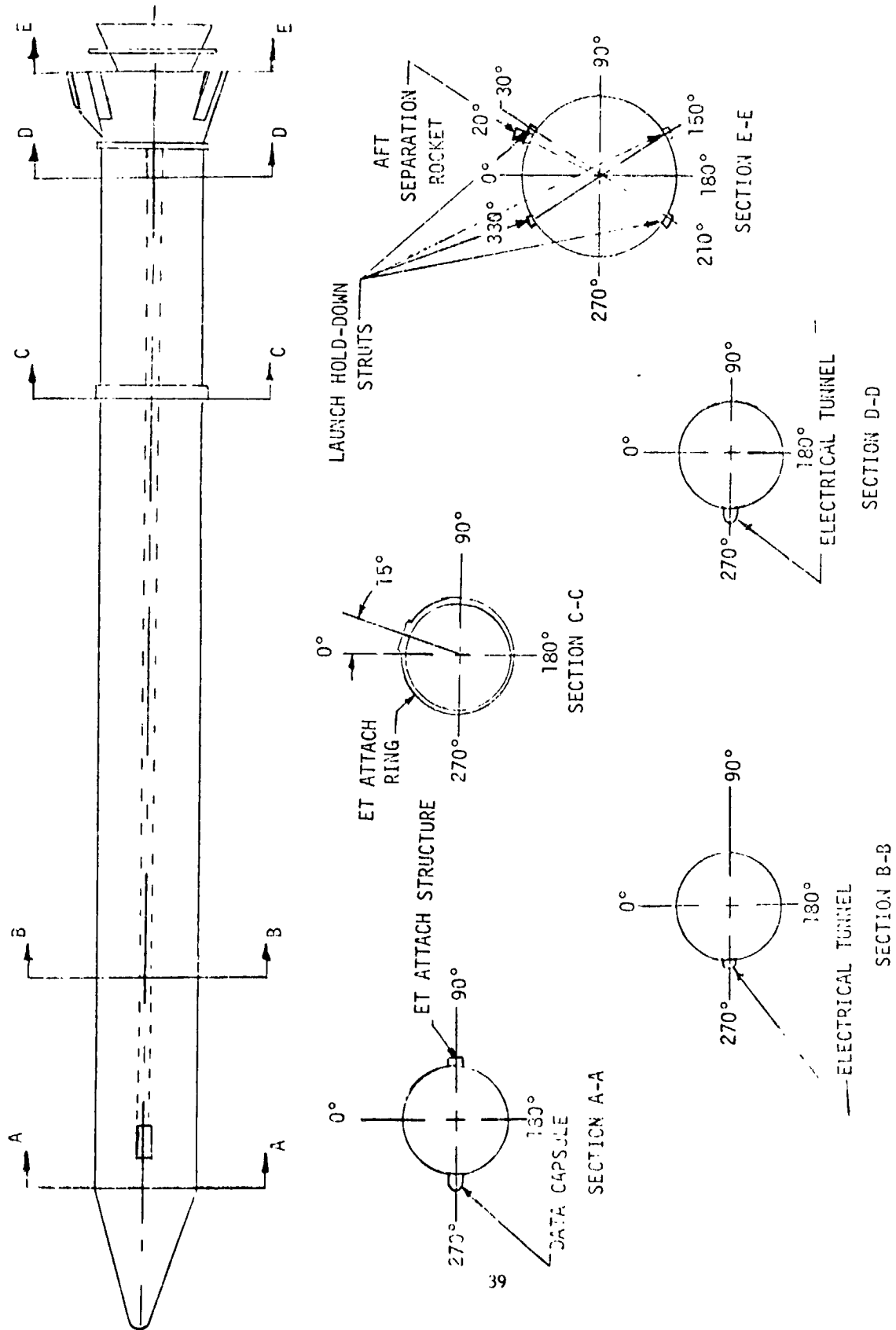
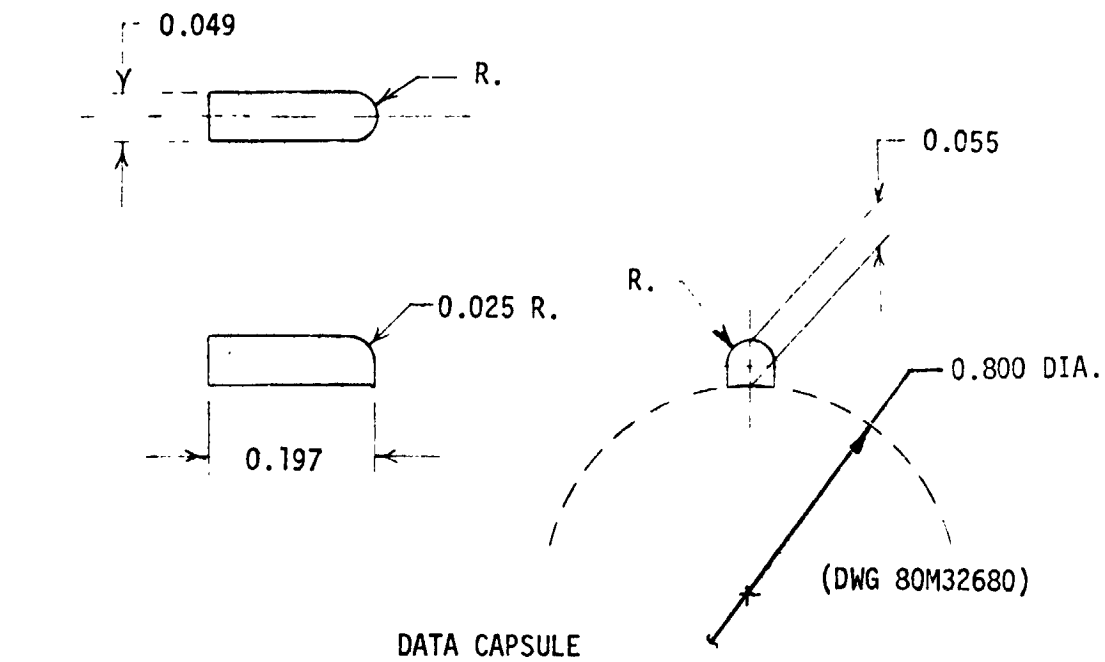


Figure 3. PROTUDERANCE RADIAL LOCATIONS



ALL DIMENSIONS IN INCHES

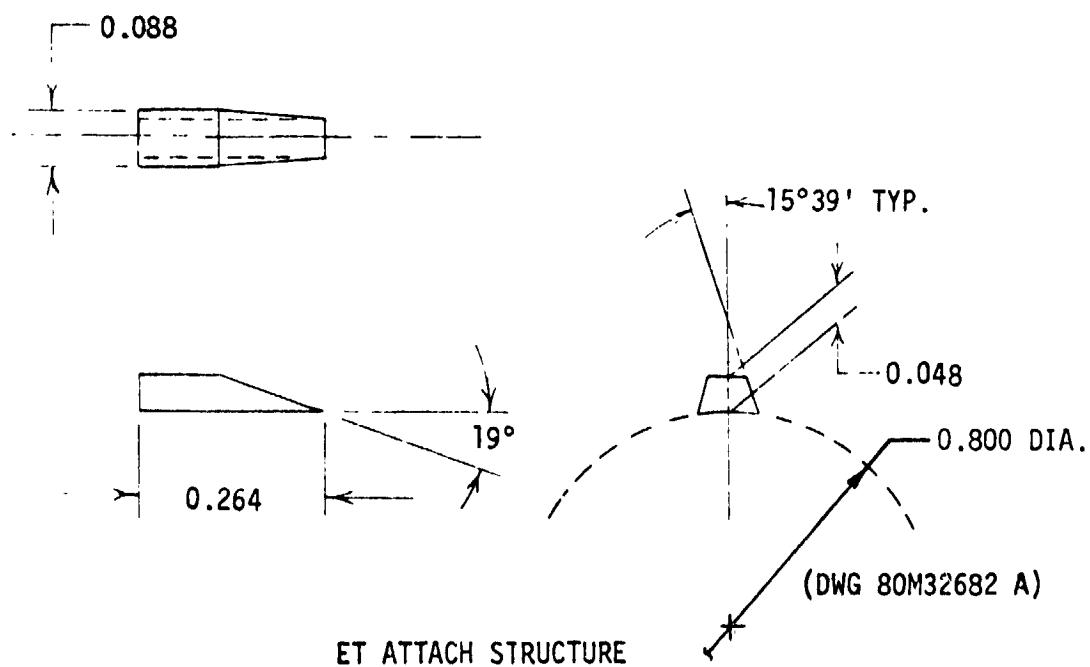
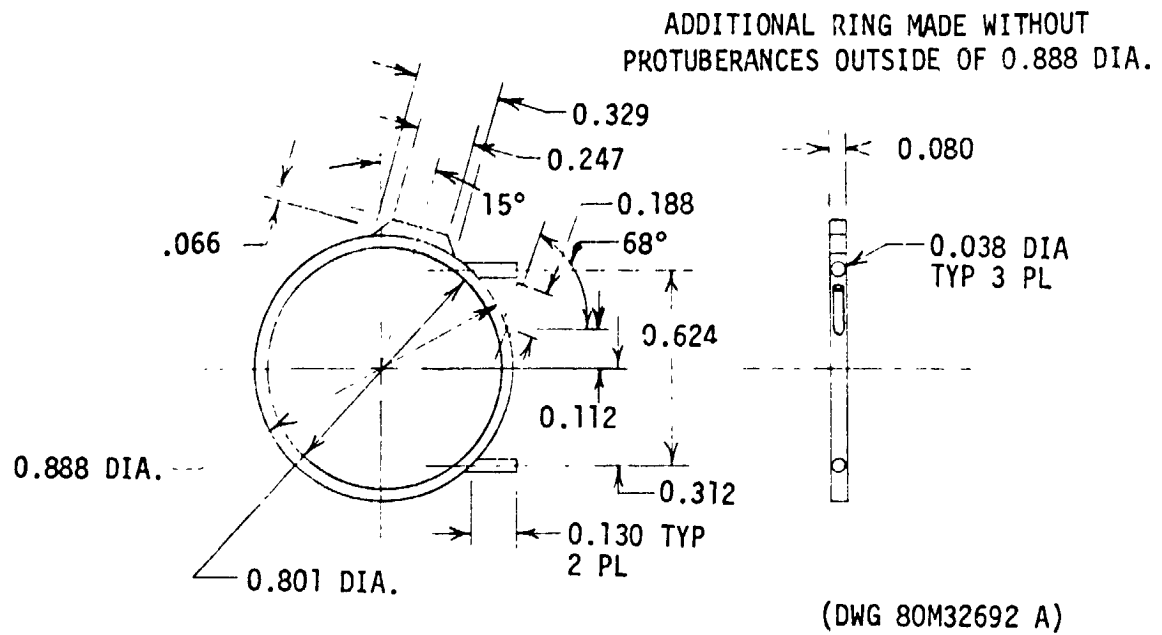
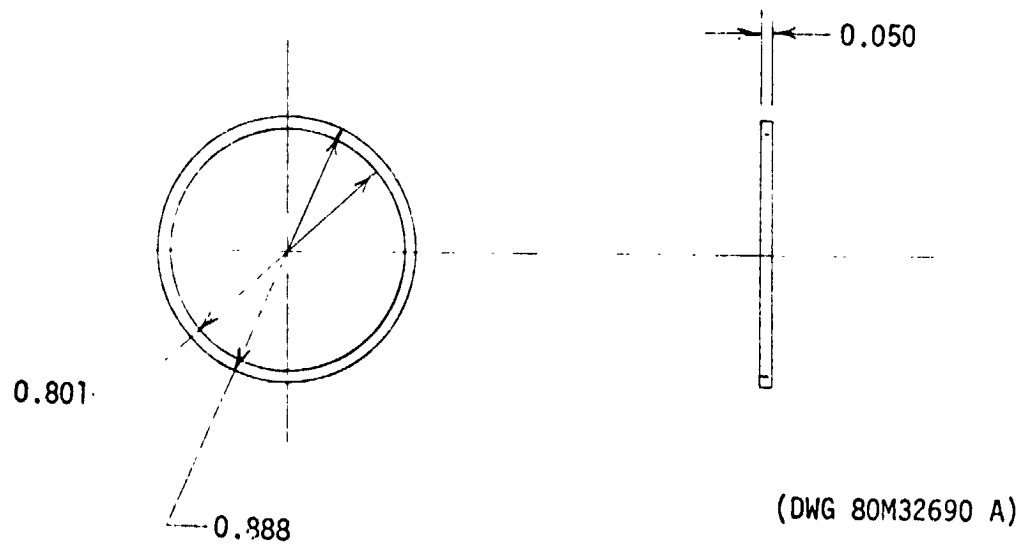


Figure 4. PROTUBERANCE DIMENSIONS



ET ATTACH RINGS

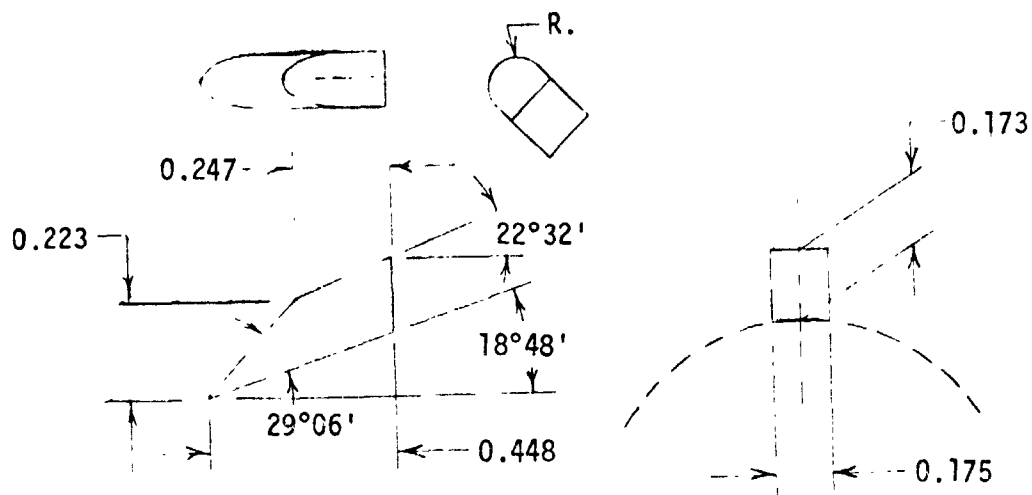
ALL DIMENSIONS IN INCHES



AFT RING

Figure 4. (con't) PROTUBERANCE DIMENSIONS

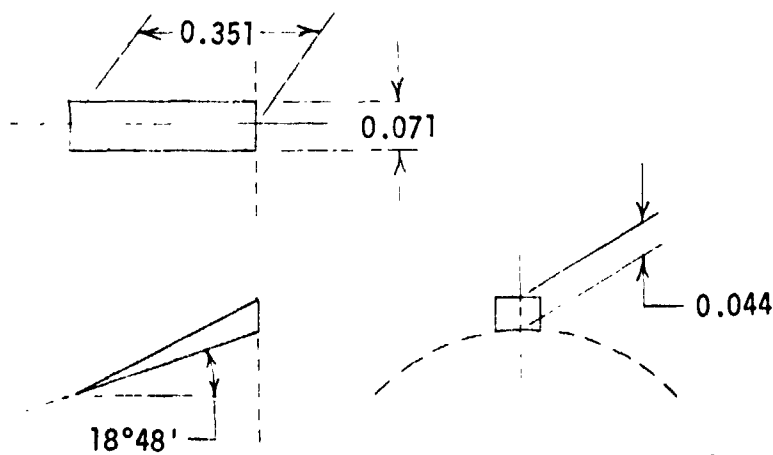
NORTHROP SERVICES, INC.



(DWG 80M32681 A)

AFT SEPARATION ROCKET

ALL DIMENSIONS IN INCHES

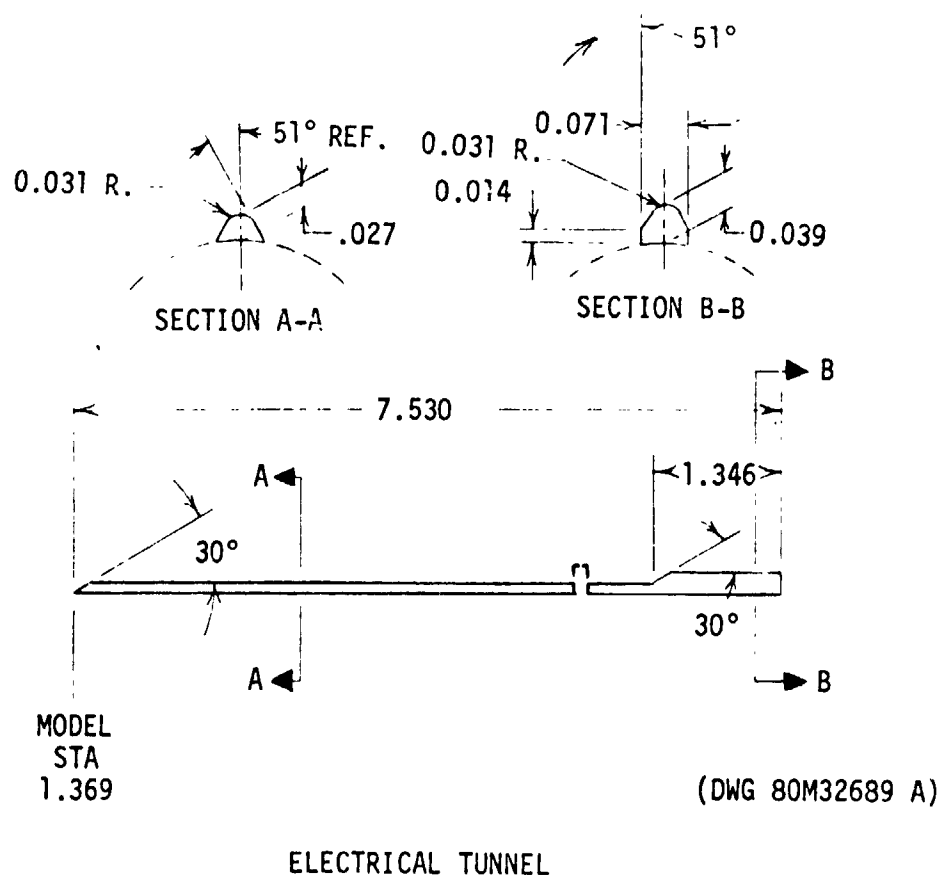


(DWG 80M32691 A)

LAUNCH HOLD-DOWN STRUTS

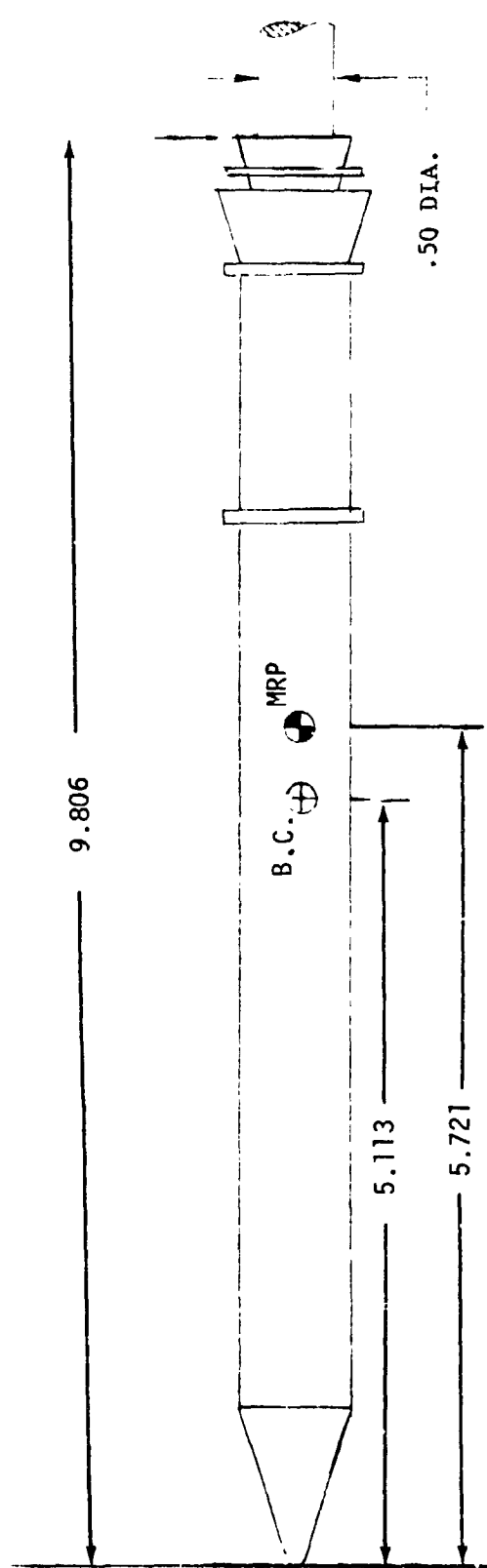
Figure 4. (con't) PROTUBERANCE DIMENSIONS

NORTHROP SERVICES, INC.



ALL DIMENSIONS IN INCHES

Figure 4. (conc'd) PROTUBERANCE DIMENSIONS



ALL DIMENSIONS IN INCHES

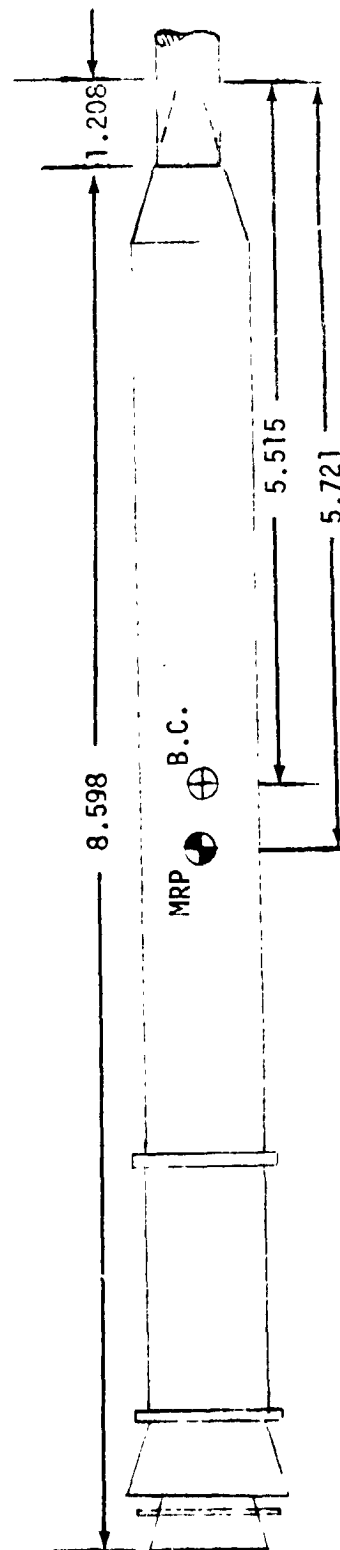


Figure 5. BALANCE MOMENT CENTER AND MOMENT REFERENCE POINT LOCATION

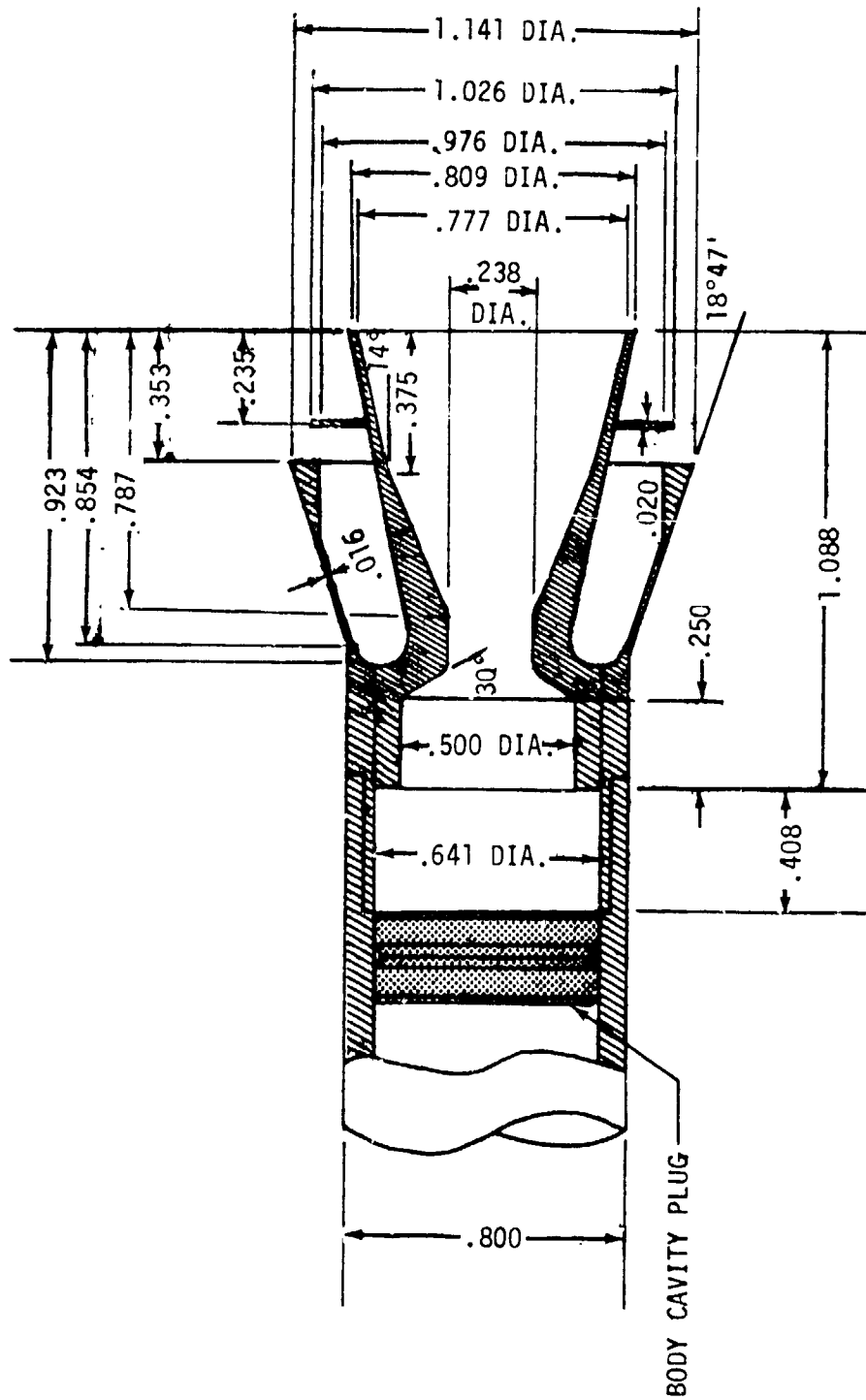


Figure 6. NOZZLE - AFT BODY CAVITY CROSS SECTION

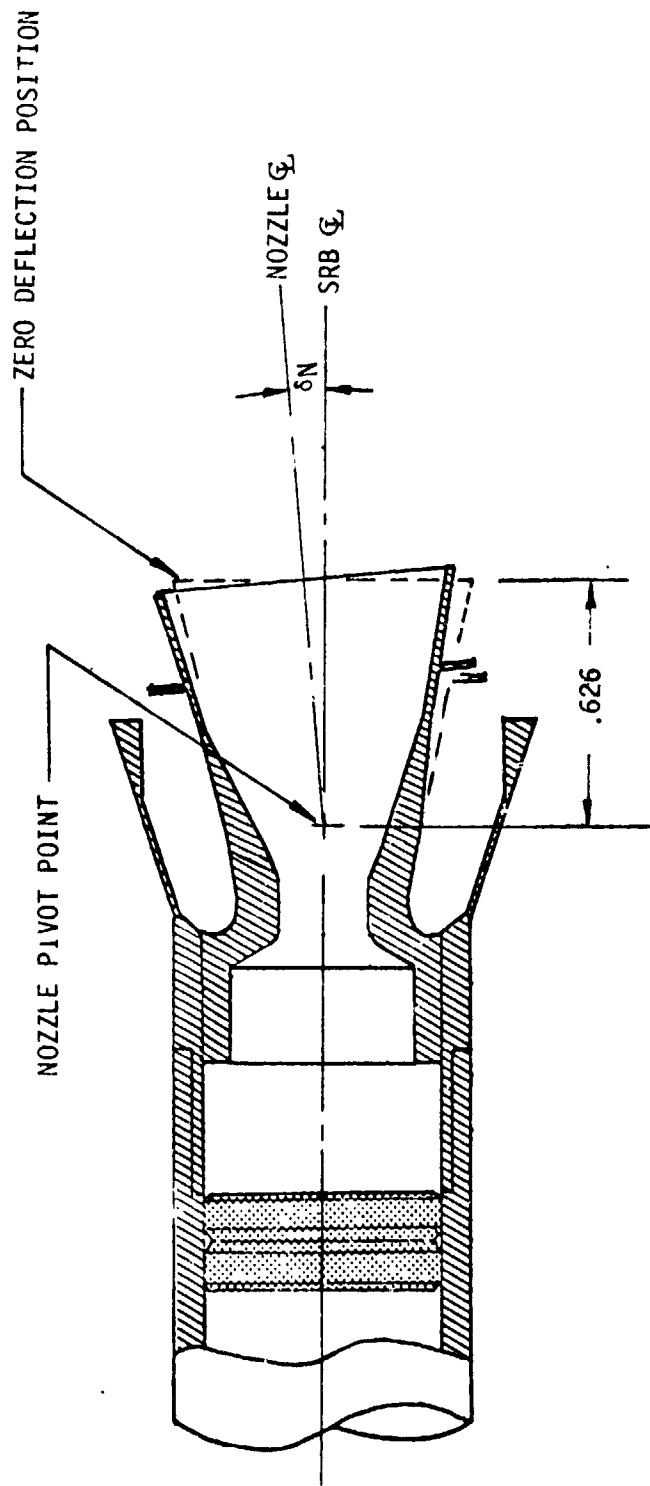


Figure 7. SCHEMATIC OF DEFLECTED NOZZLE



**NORTHROP SERVICES, INC.**

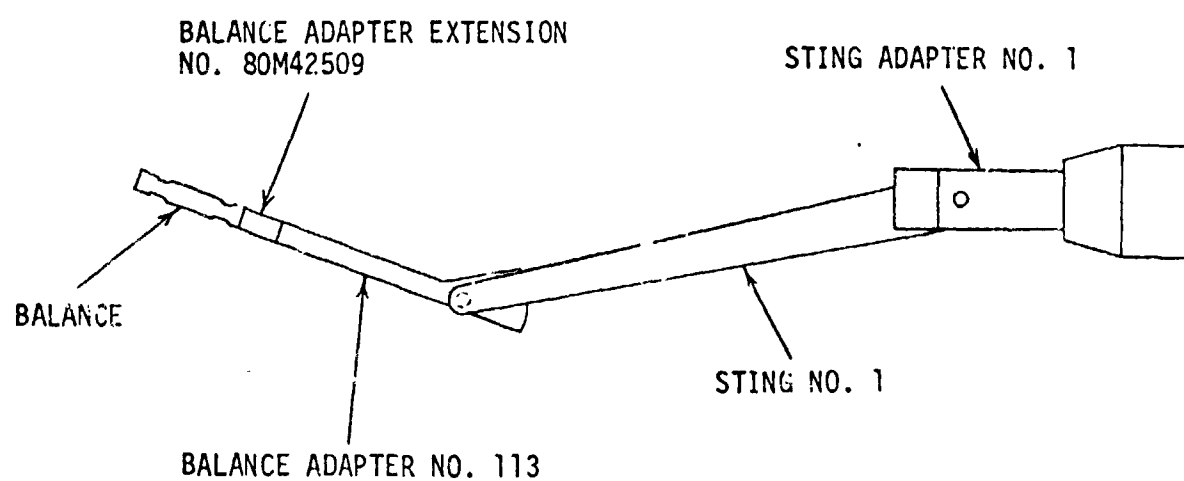


Figure 8. SUPPORT SETUP-END MOUNT

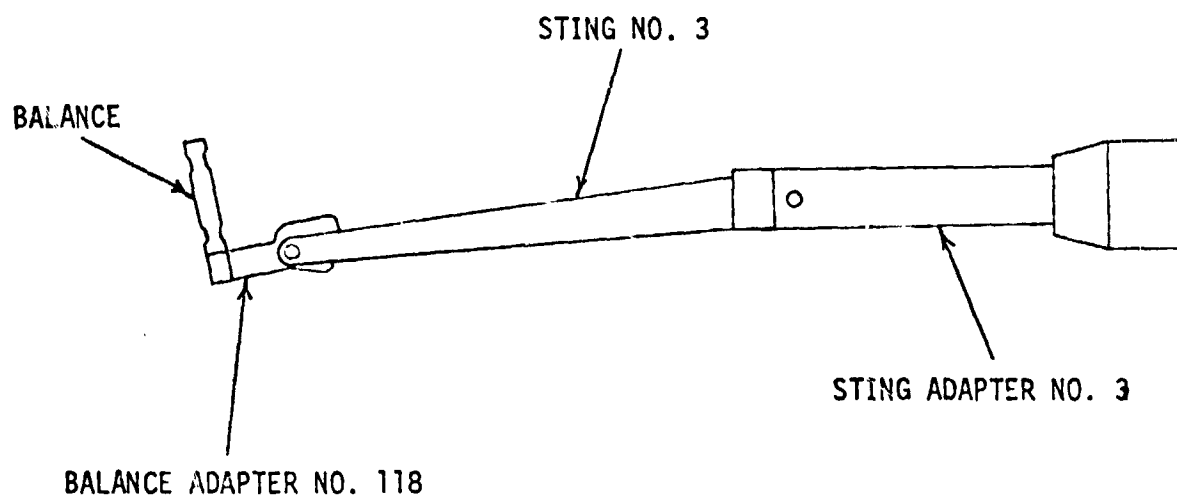


Figure 9. SUPPORT SETUP-SIDE MOUNT

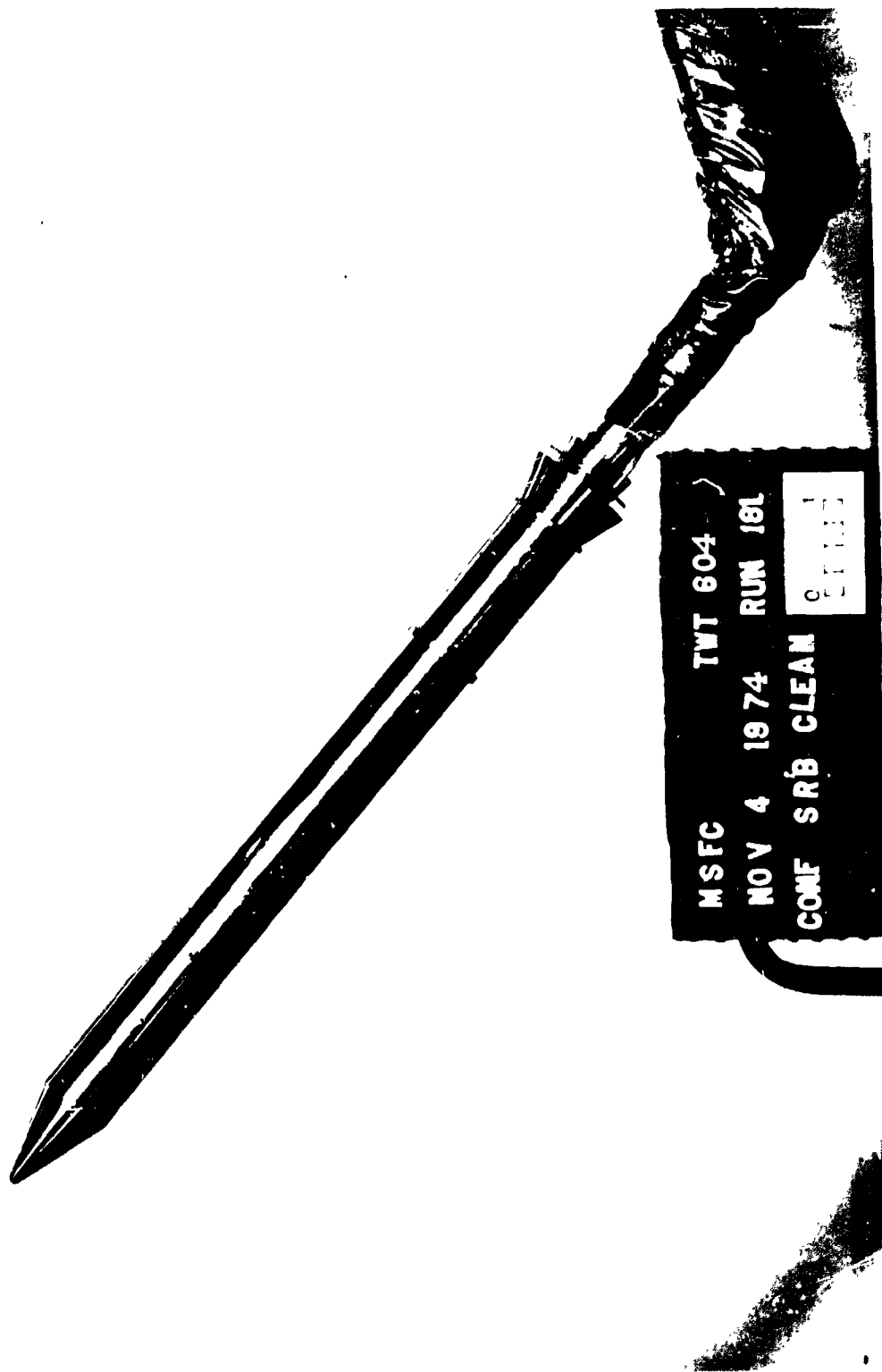


FIGURE 10. TUNNEL INSTALLATION OF "CLEAN" SRB MODEL IN TAIL-MOUNT CONFIGURATION

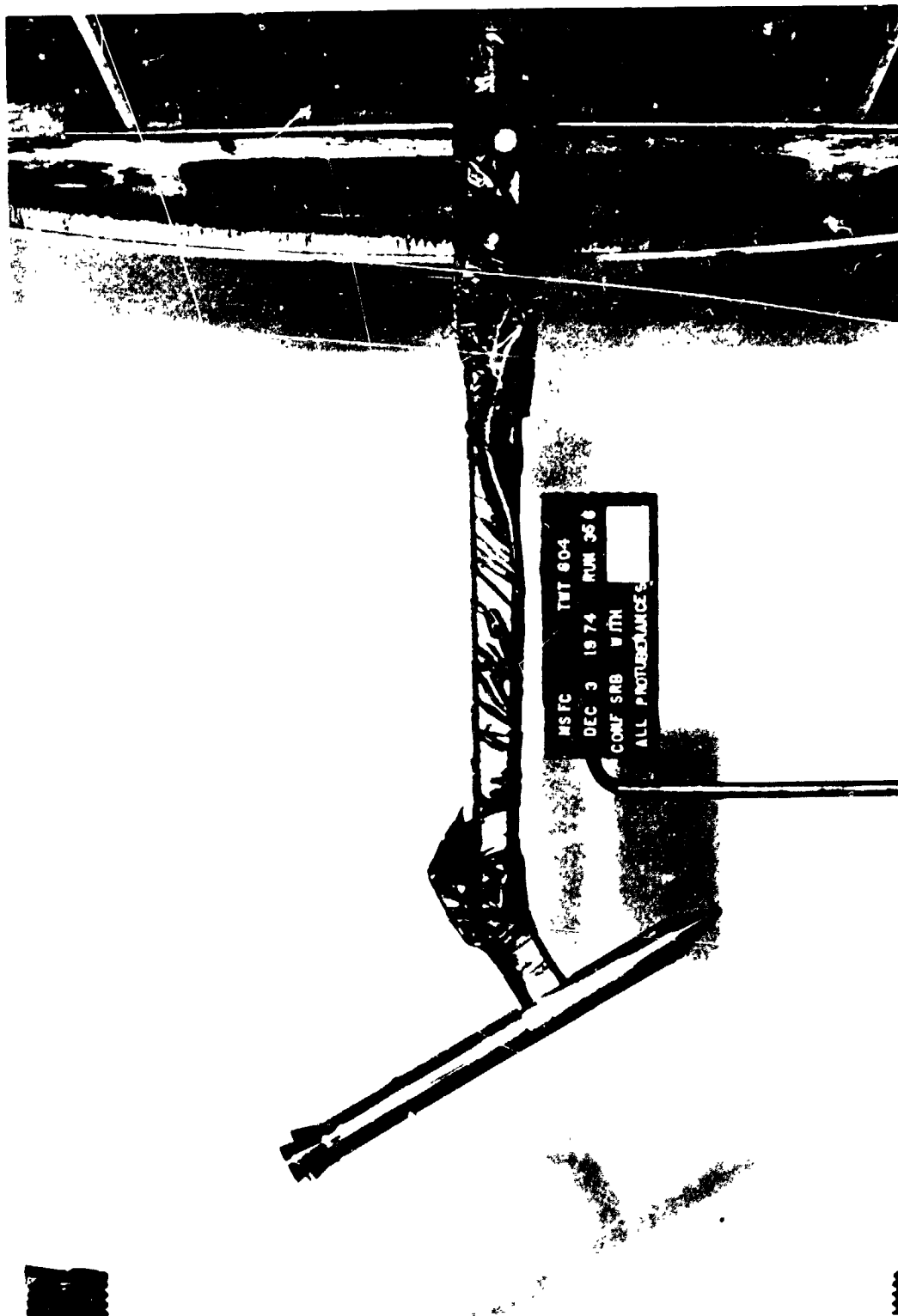


FIGURE 11. TUNNEL INSTALLATION OF SRB MODEL WITH ALL PROTRUSIONS IN SIDE-MOUNT CONFIGURATION

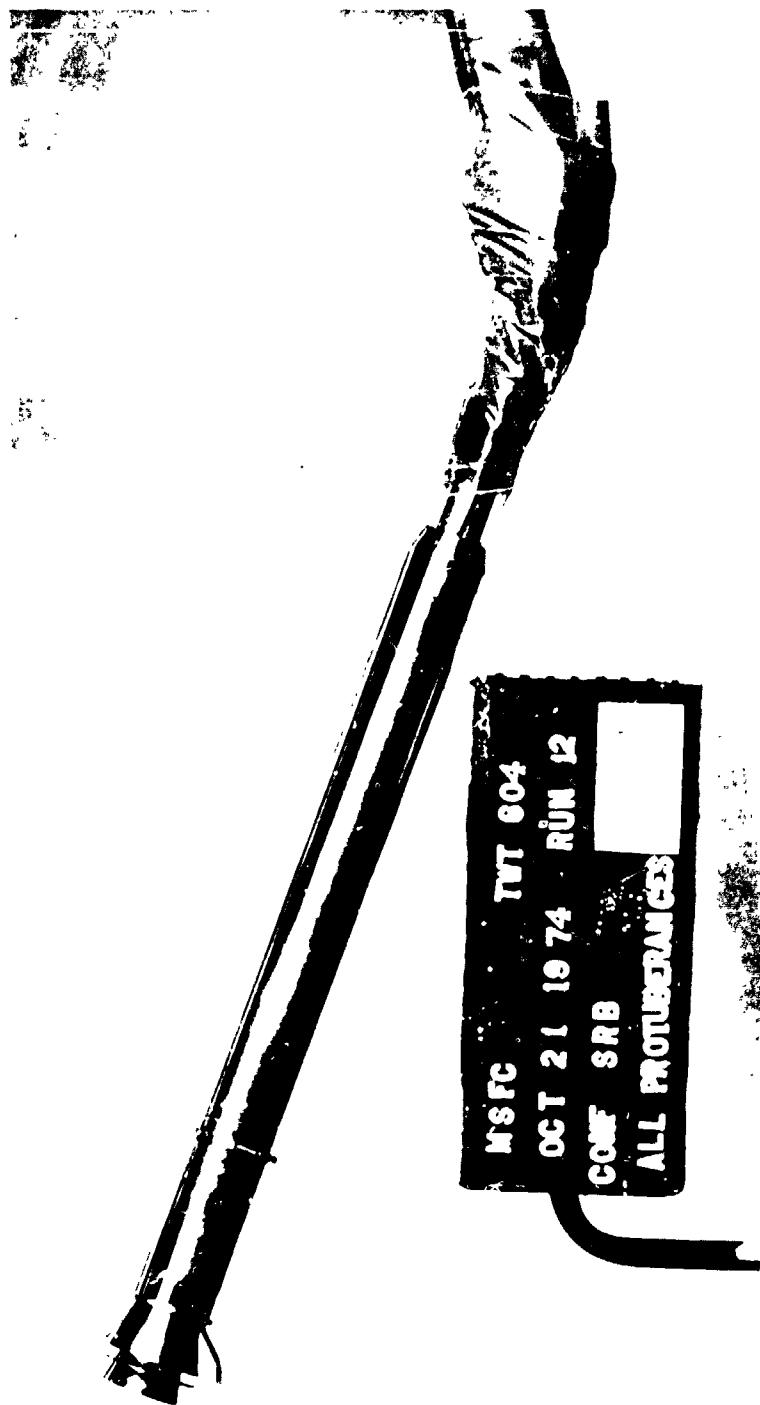


FIGURE 12. TUNNEL INSTALLATION OF SRB MODEL WITH ALL PROTUBERANCES IN NOSE-MOUNT CONFIGURATION



FIGURE 13. TUNNEL INSTALLATION OF SRB MODEL WITH ALL PROTUBERANCES BUT WITHOUT "HEATSHIELD" IN NOSE-MOUNT CONFIGURATION

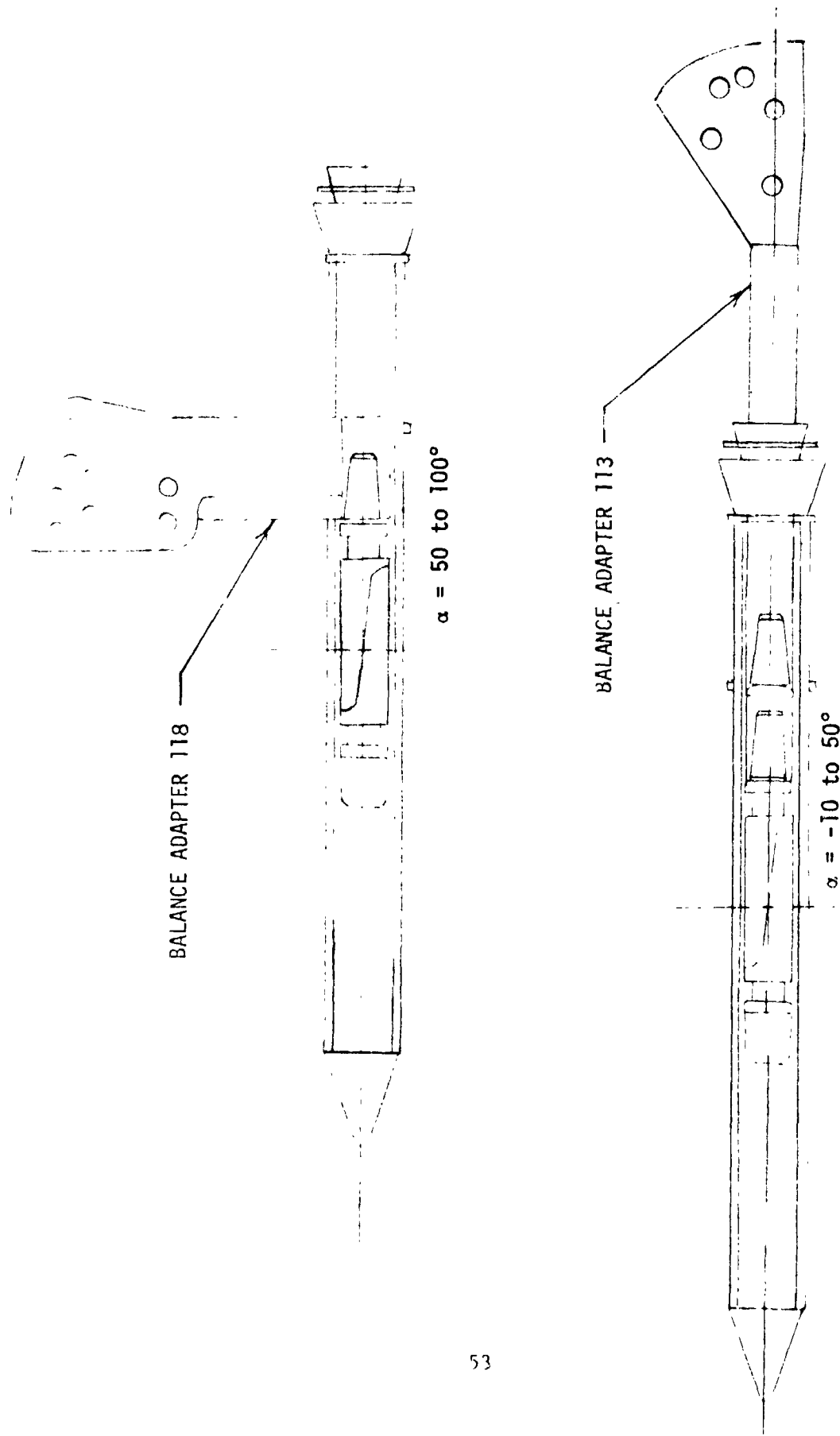


Figure 14. MOUNTING ARRANGEMENTS FOR ANGLE OF ATTACK -10 to 100 DEGREES

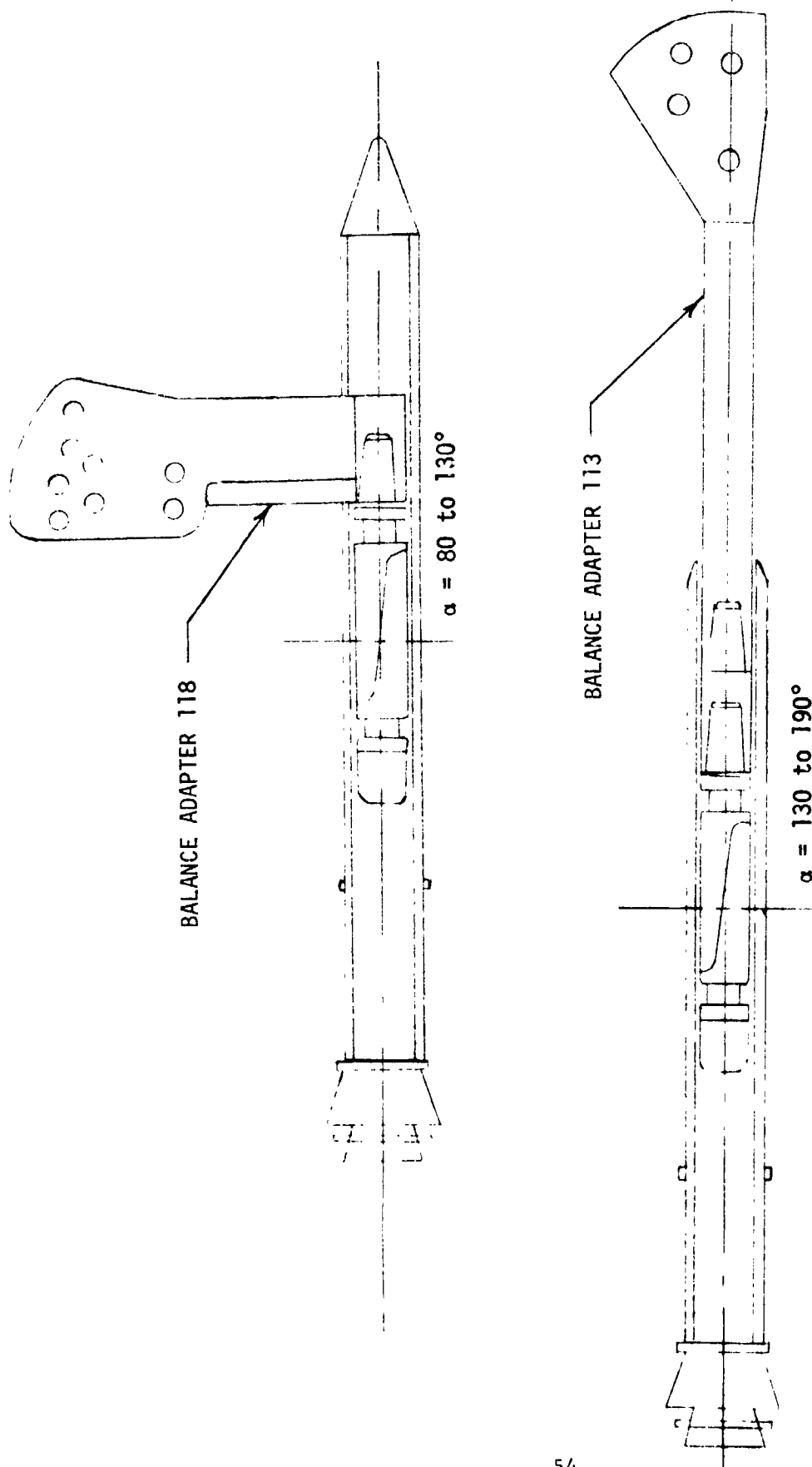


Figure 15. MOUNTING ARRANGEMENTS FOR ANGLE OF ATTACK 80 to 190 DEGREES



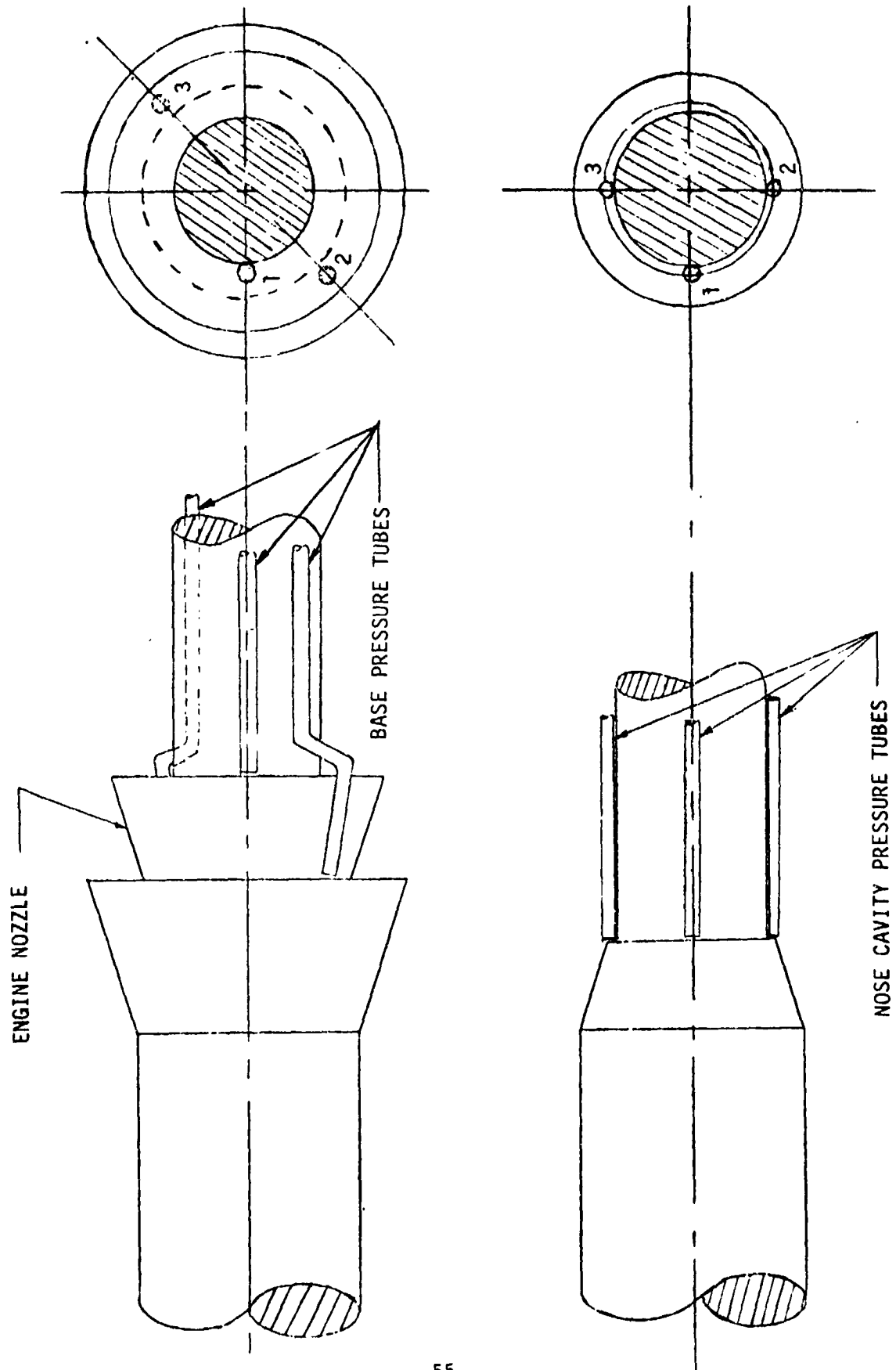


Figure 16. PRESSURE TUBE LOCATIONS

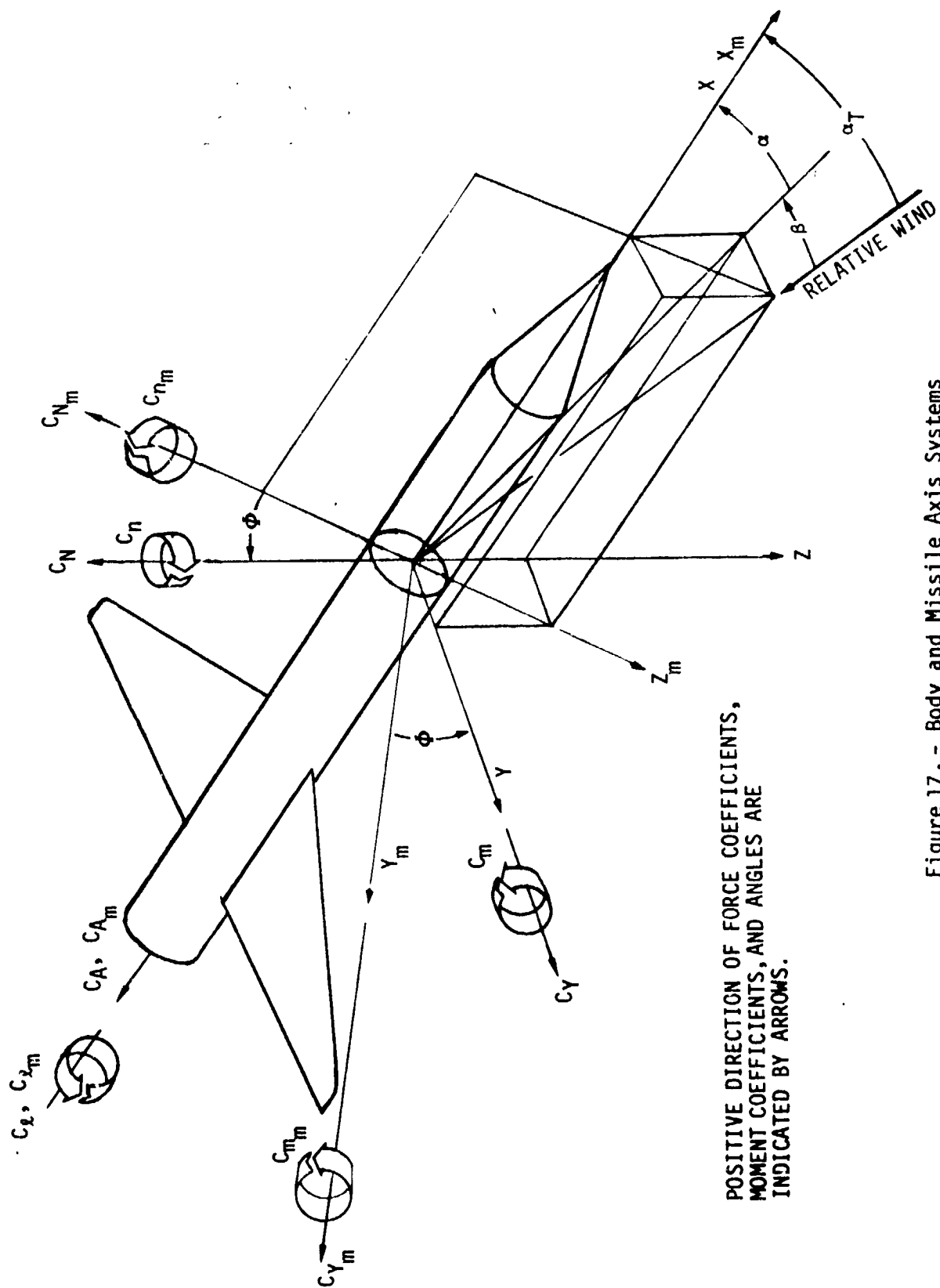


Figure 17. - Body and Missile Axis Systems

DATA FIGURES

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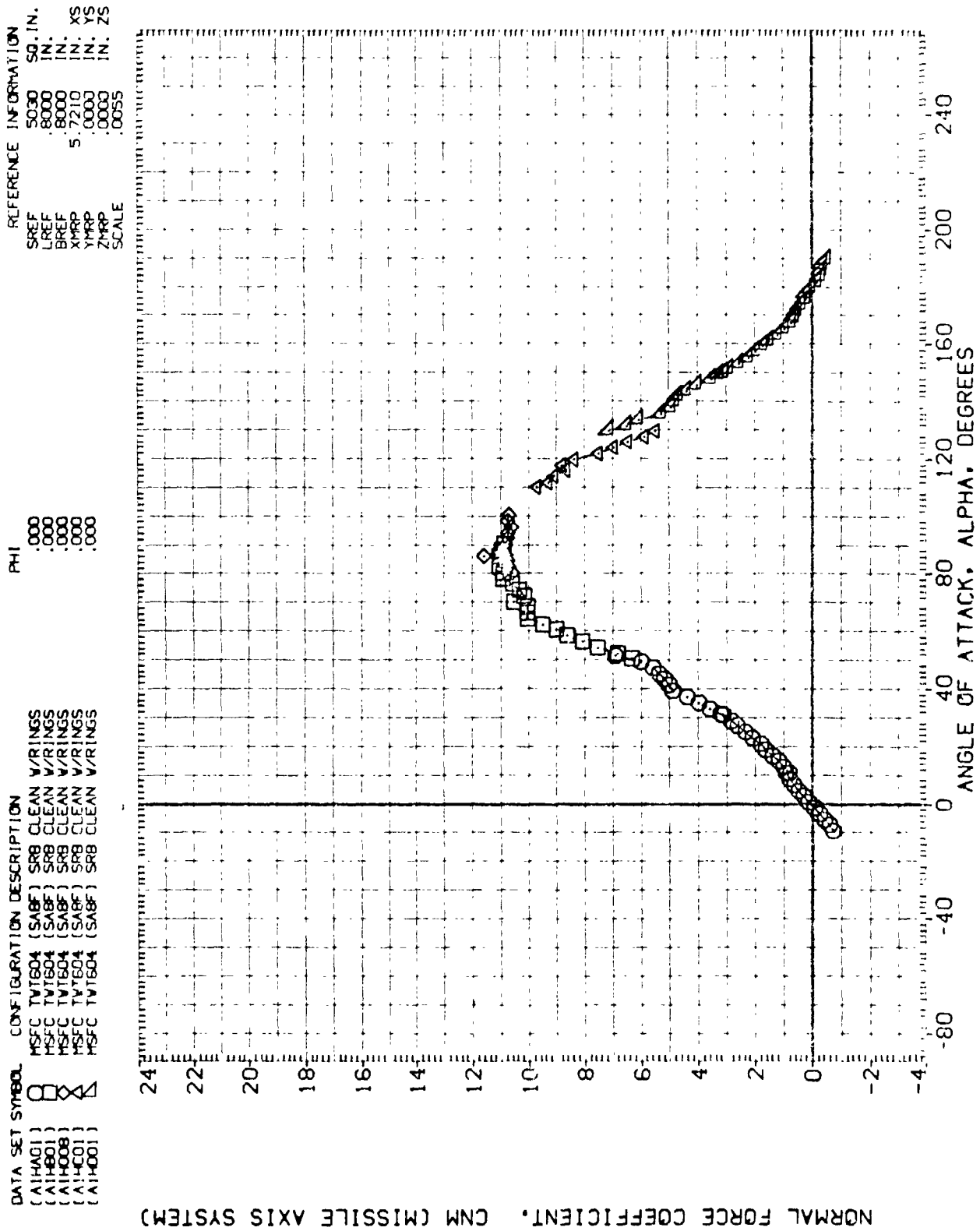


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(M)MACH = .41

PAGE

1

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	5.7210 IN. XS
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	VMRP .0000 IN. YS
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

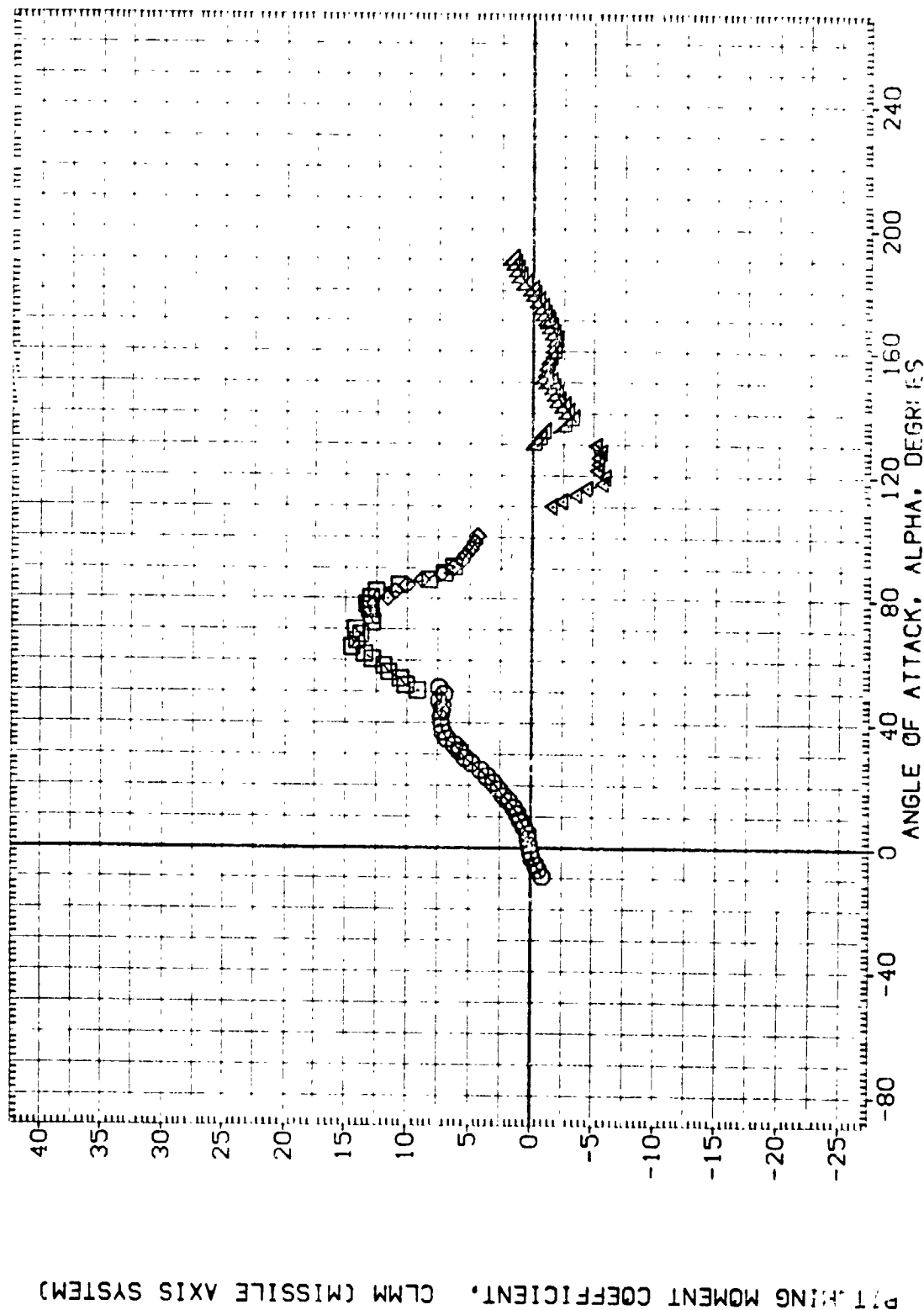


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(A)MACH = .41

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	AMRP 5.7210 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN.
			SCALE .0055

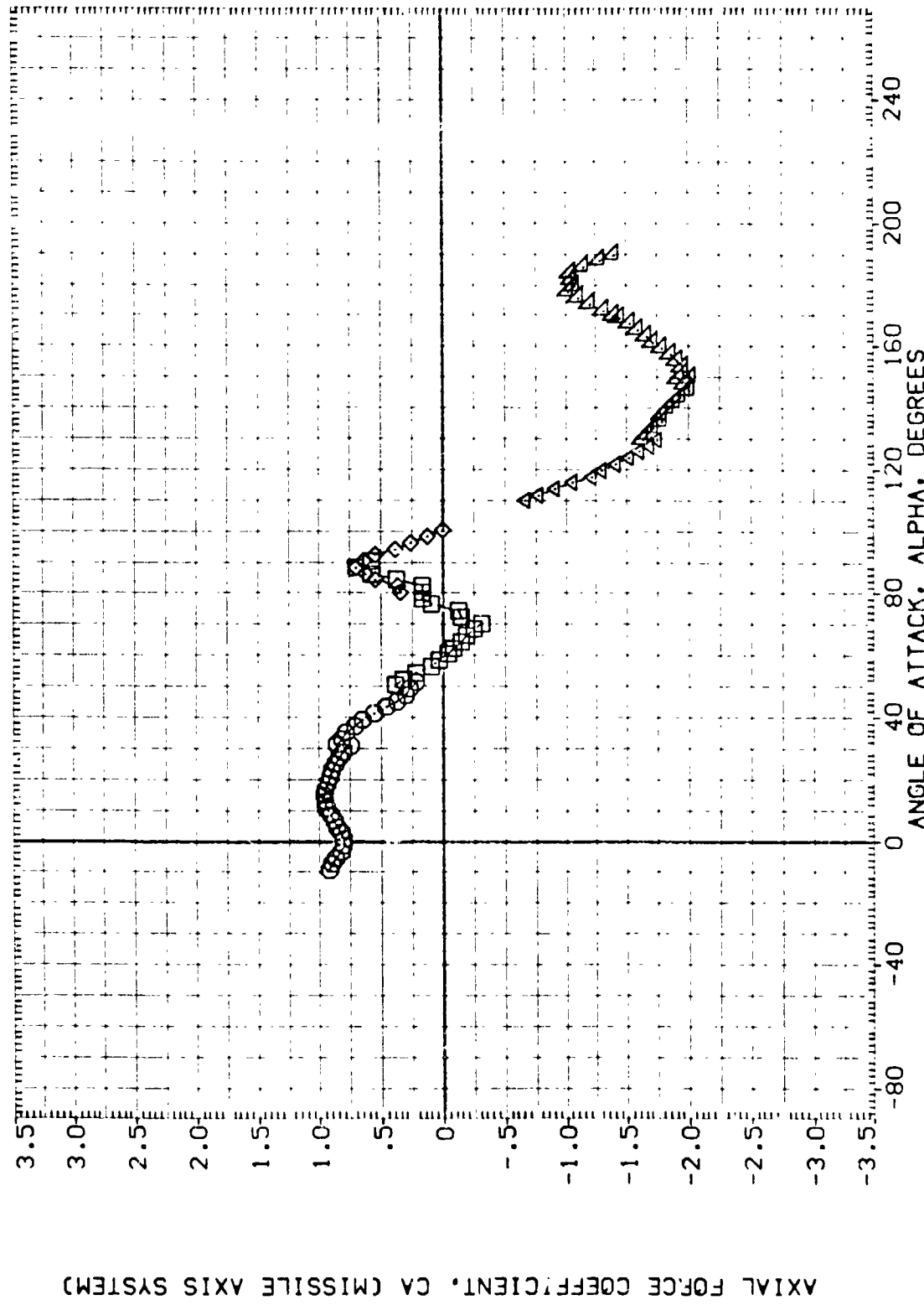


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(A) MACH = .41

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H401)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H801)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP \$.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

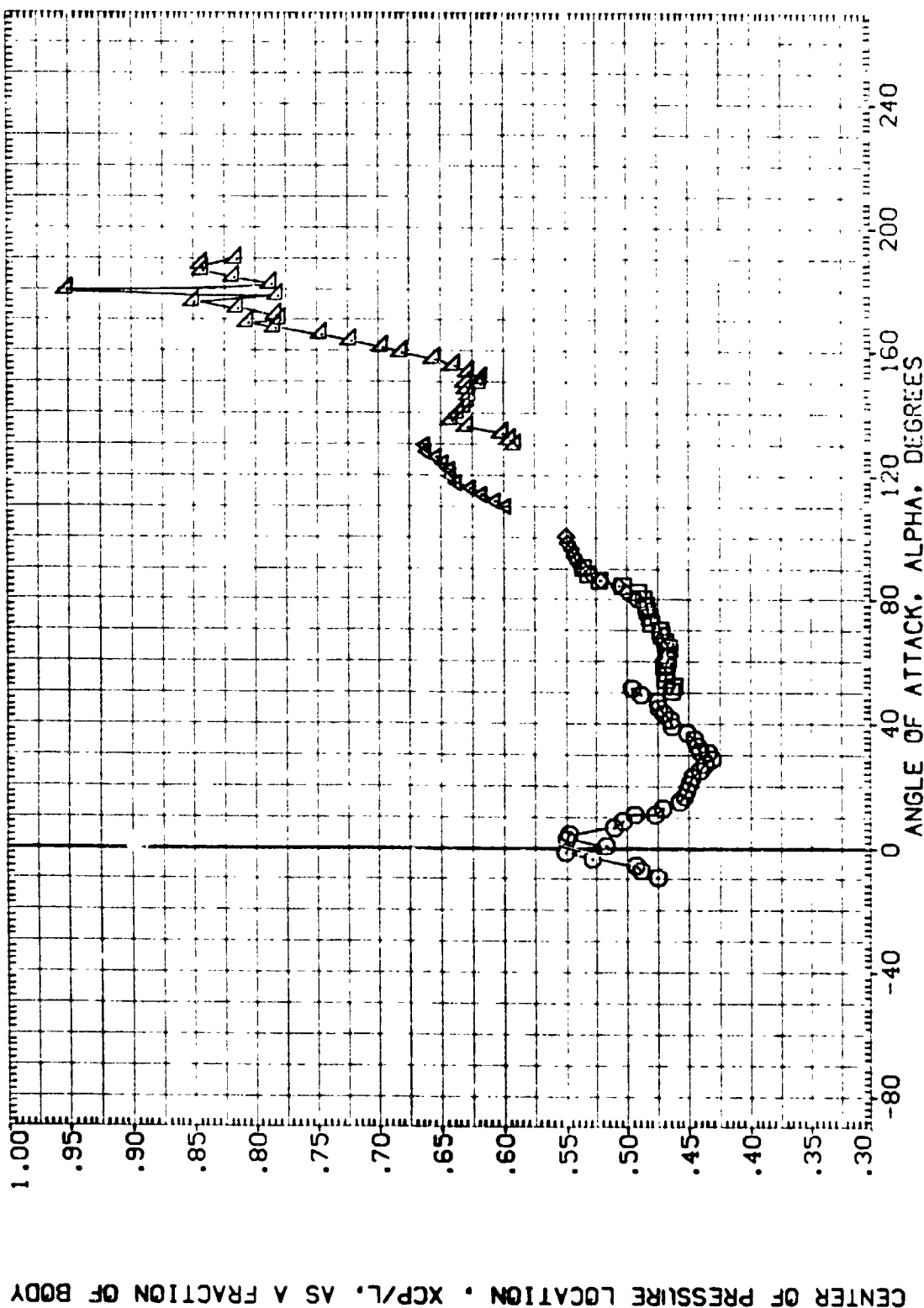


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	P.Y.	REFERENCE INFORMATION
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .3030 SQ. IN.
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .3000 IN.
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .3000 IN.
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H401)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

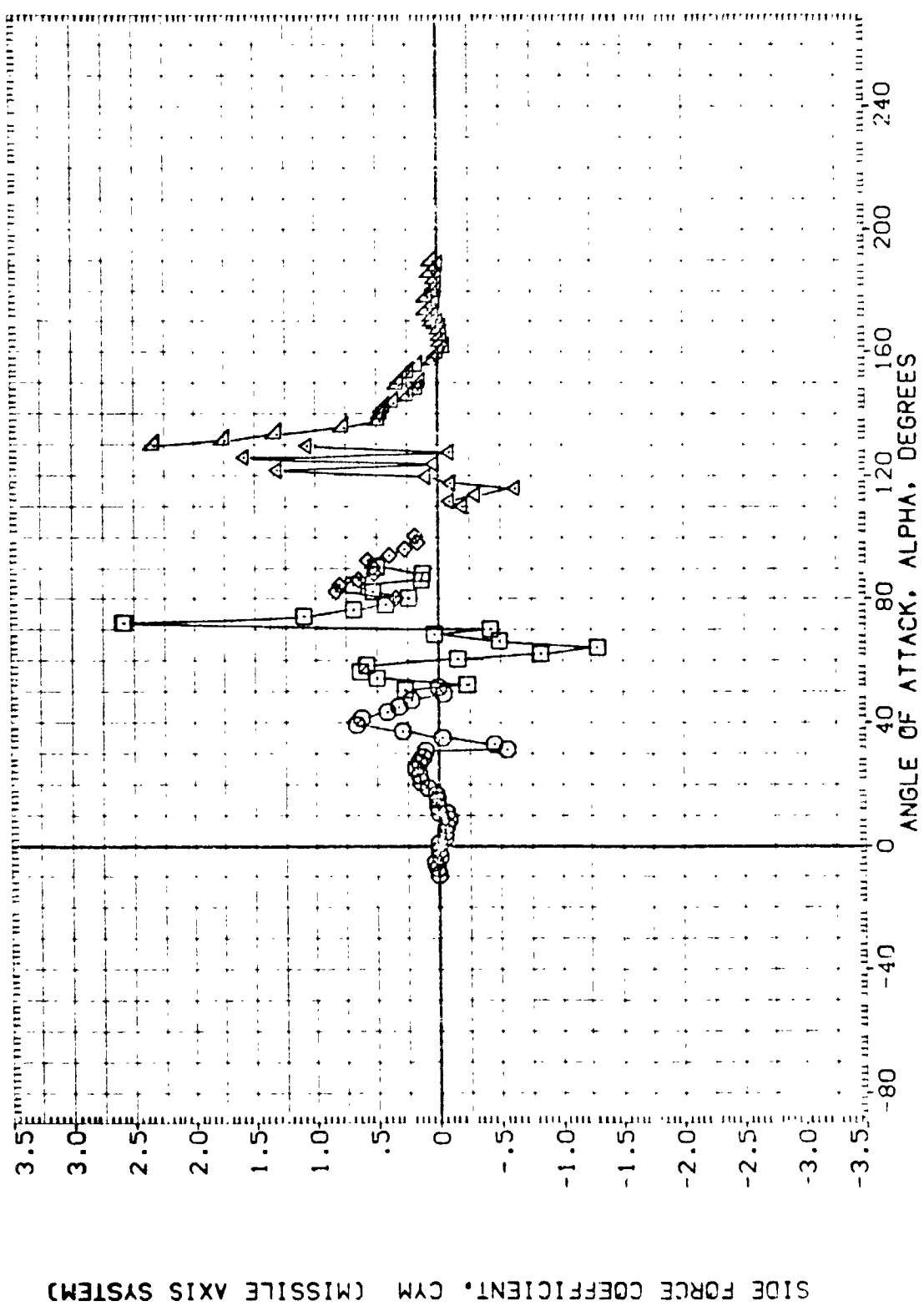


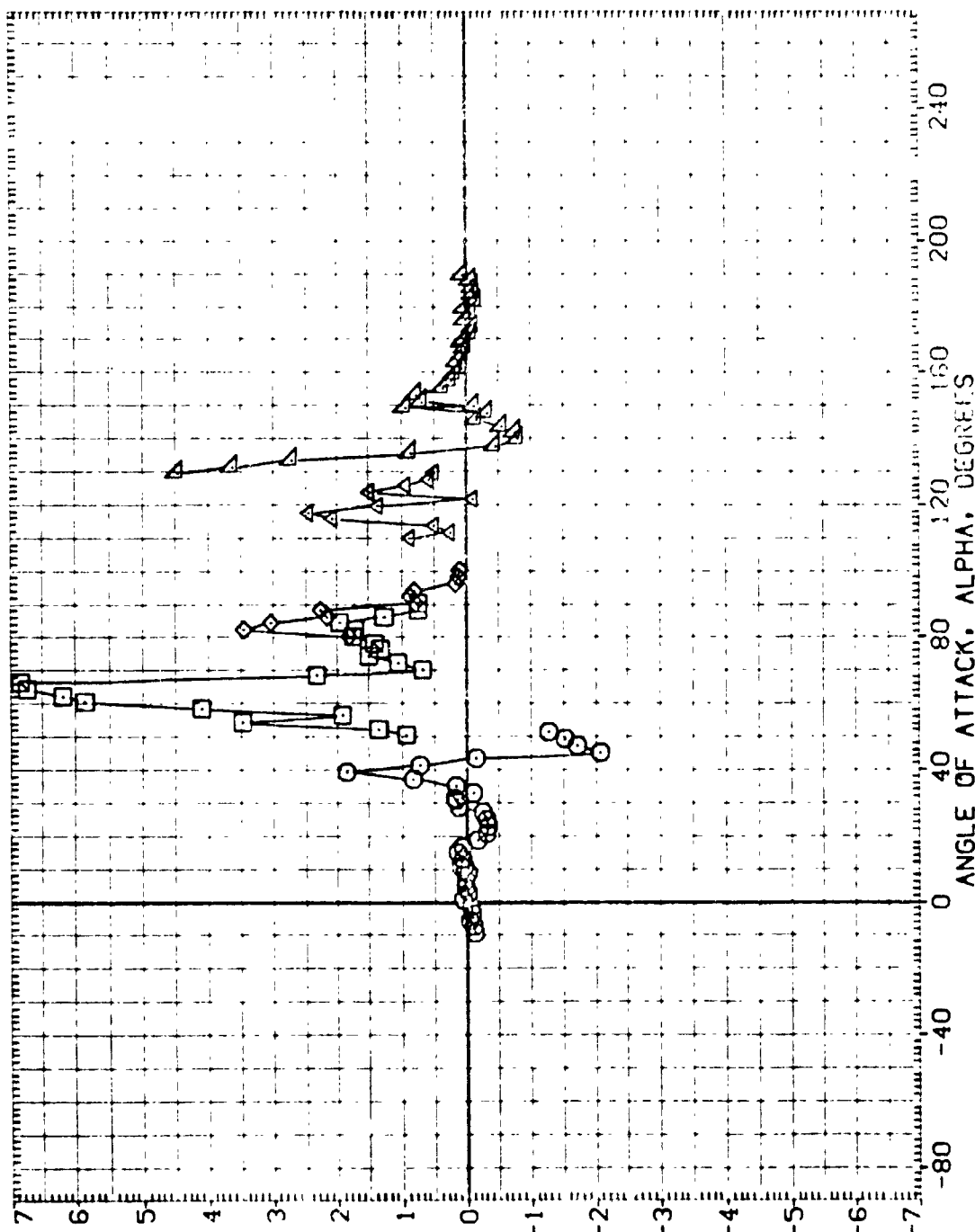
FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS



REFERENCE INFORMATION  
 SREF 50.30 IN.  
 LREF 50.30 IN.  
 BREF 50.30 IN.  
 XPRP 5.7210 IN. XS  
 YPRP 5.7210 IN. YS  
 ZPRP 5.7210 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H001) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H002) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H003) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H004) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H005) MSFC TVT604 (SABF) SRB CLEAN V/RINGS



YAWING MOMENT COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(A)MACH = .41

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HAG1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1HBO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1HCO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1HDO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	XRRP 5.7210 IN. XS
(A1HDO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	YRRP .0000 IN. YS
(A1HDO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	ZRRP .0000 IN. ZS
(A1HDO1)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0055

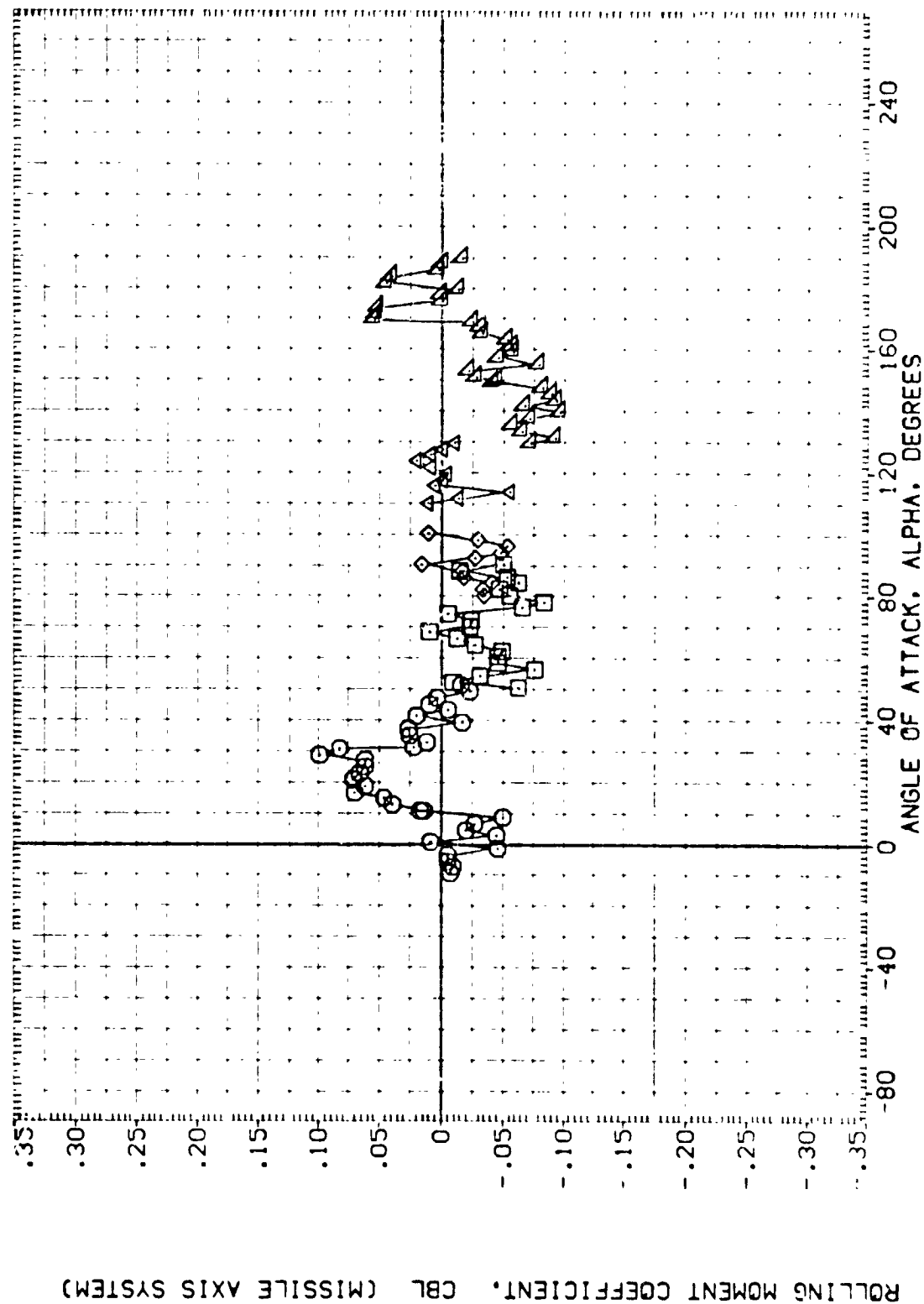


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

REFERENCE INFORMATION  
 SREF 5030 50. IN.  
 LREF 5000 50. IN.  
 BREF 8000 50. IN.  
 XREF 5.7210 50. IN.  
 YREF 5.7210 50. IN.  
 ZREF 5.7210 50. IN.  
 SCALE 0055

PHI  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H001) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H002) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (A1H003) DATA NOT AVAILABLE  
 (A1H004) DATA NOT AVAILABLE  
 (A1H005) MSFC TVT604 (SABF) SRB CLEAN V/RINGS

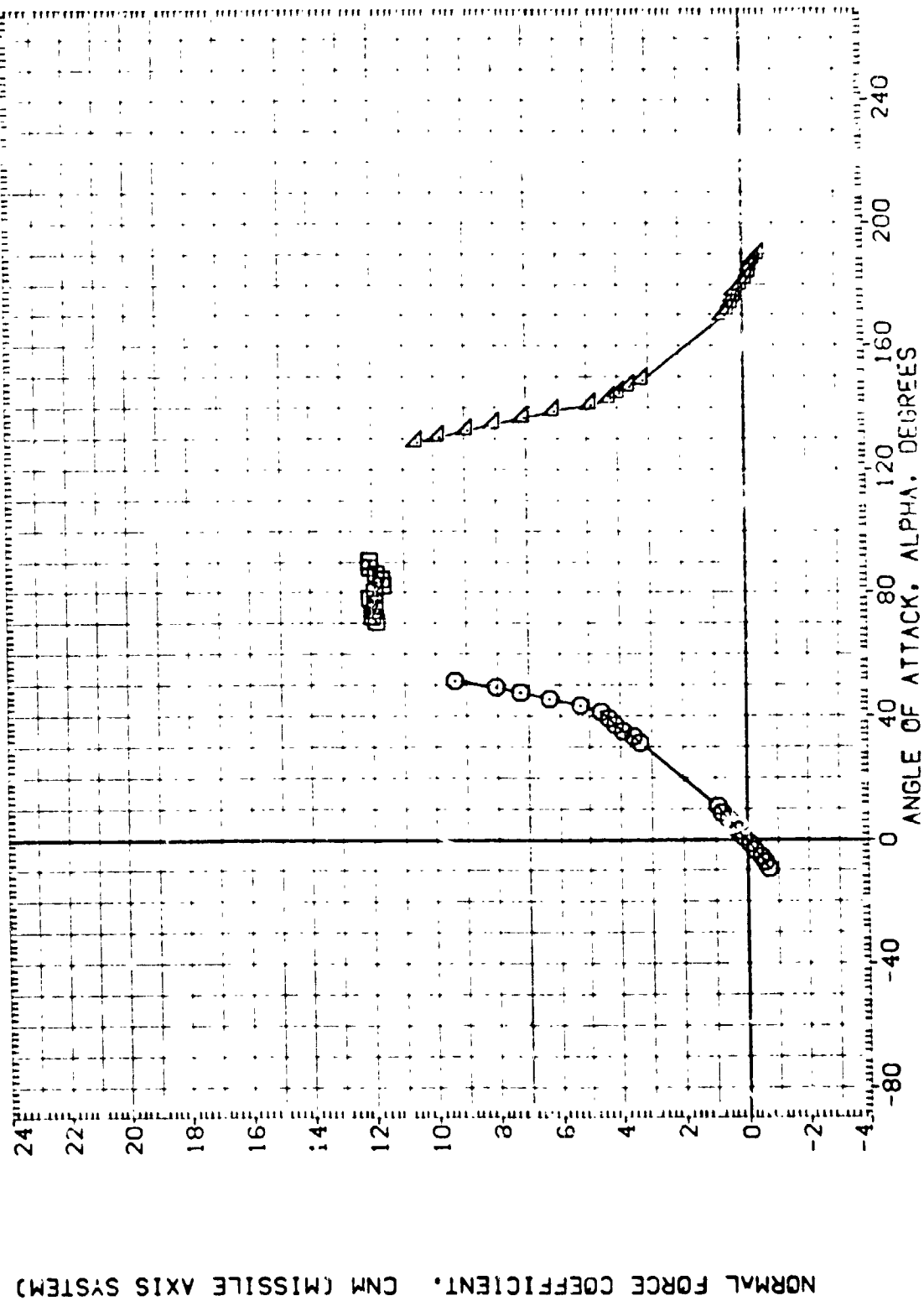


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB CLEAN ATTACH AND AIT RINGS

(3) MACH - .50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF 5.7210 IN. XS
(A1H001)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

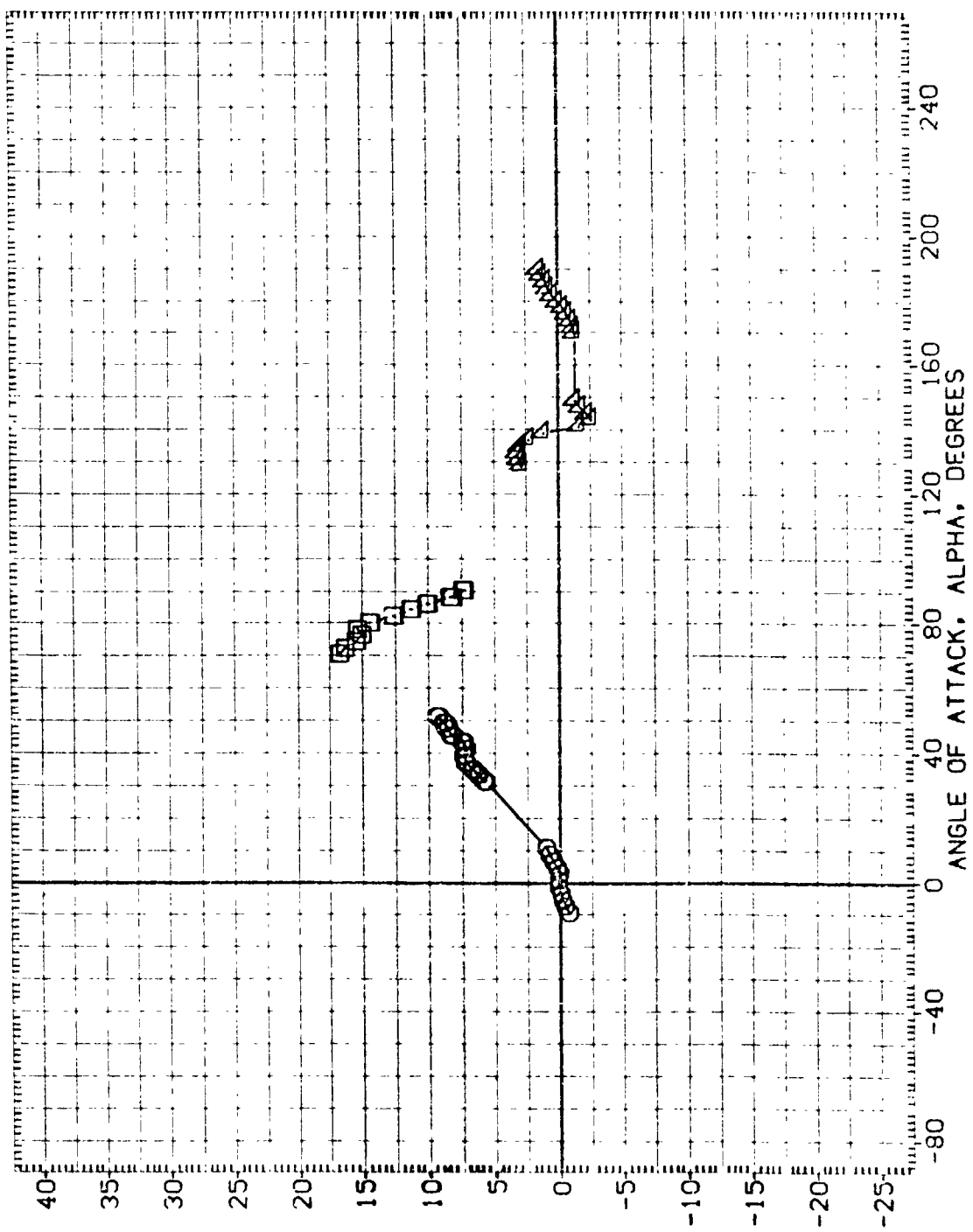


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(B)MACH = .50

DATA SET SYMBOL  
 (AIHQ01)  
 (AIHQ02)  
 (AIHQ03)  
 (AIHQ04)  
 (AIHQ05)

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 DATA NOT AVAILABLE  
 DATA NOT AVAILABLE  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS

PHI  
 .000  
 .000  
 .000  
 .000  
 .000

REFERENCE INFORMATION  
 SREF  
 LREF  
 BREF  
 XMRP  
 YMRP  
 ZMRP  
 SCALE  
 50. IN.  
 80.00 IN.  
 80.00 IN.  
 5.7210 IN.  
 0.000 IN.  
 0.000 IN.  
 0.0055

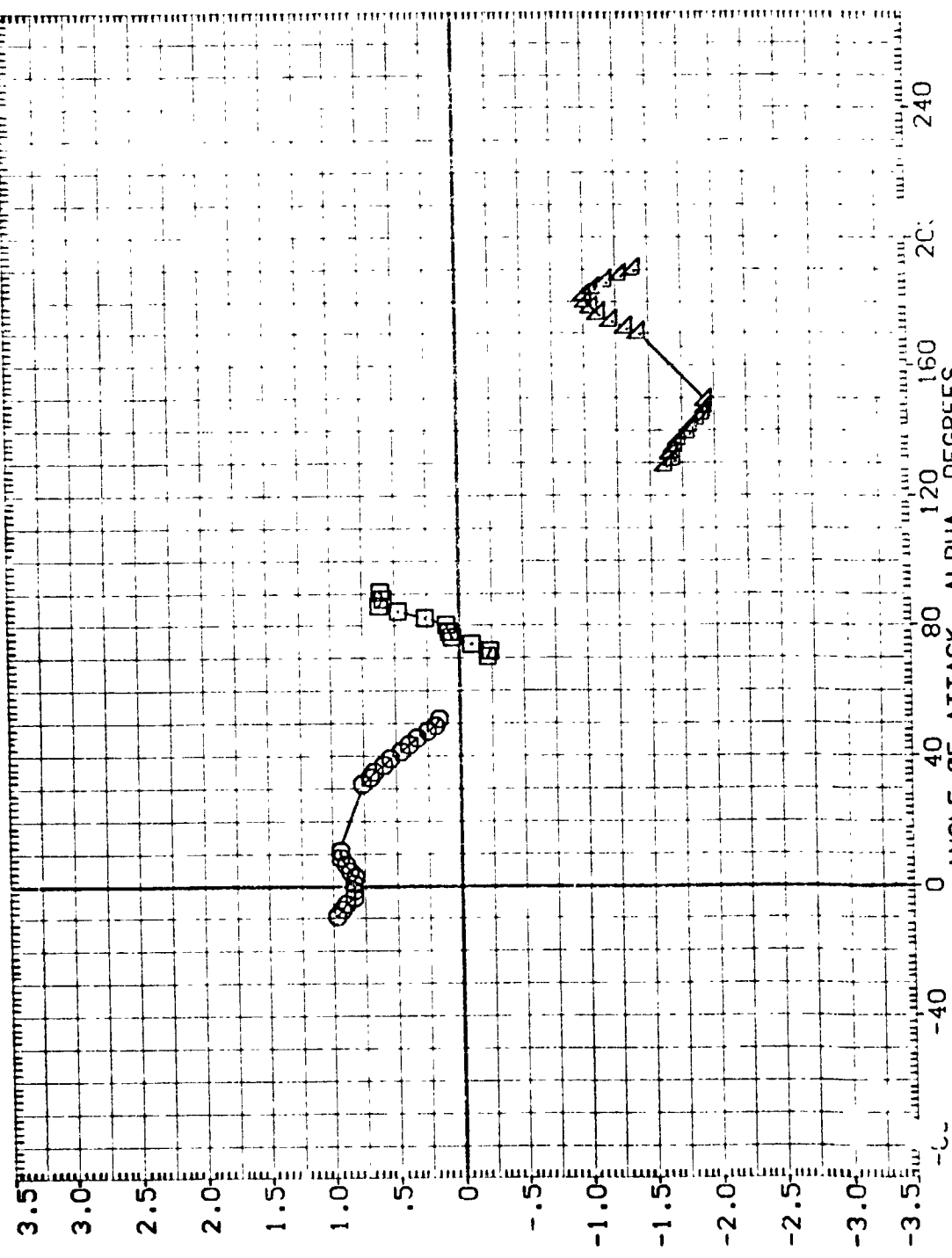


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(B)MACH = .50  
 PAGE 10

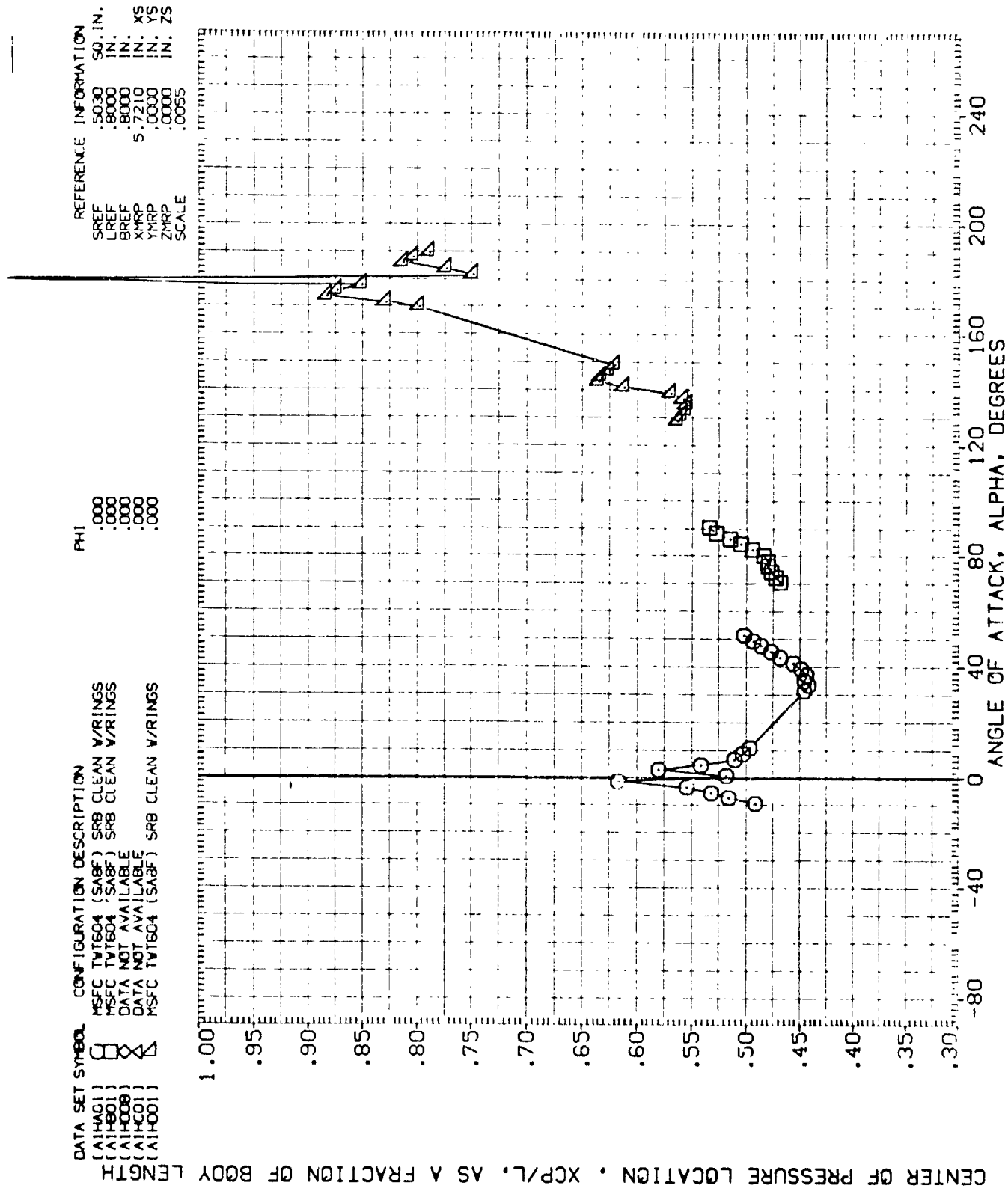


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(B)MACH = .50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	TRF 5230 50 IN.
(AIH002)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LRF 8000 IN.
(AIH003)	DATA NOT AVAILABLE	.000	BRF 8000 IN.
(AIH004)	DATA NOT AVAILABLE	.000	MRP 5.7210 IN.
(AIH005)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP 0.000 IN.
			ZMRP 0.000 IN.
			SCALE 0.055

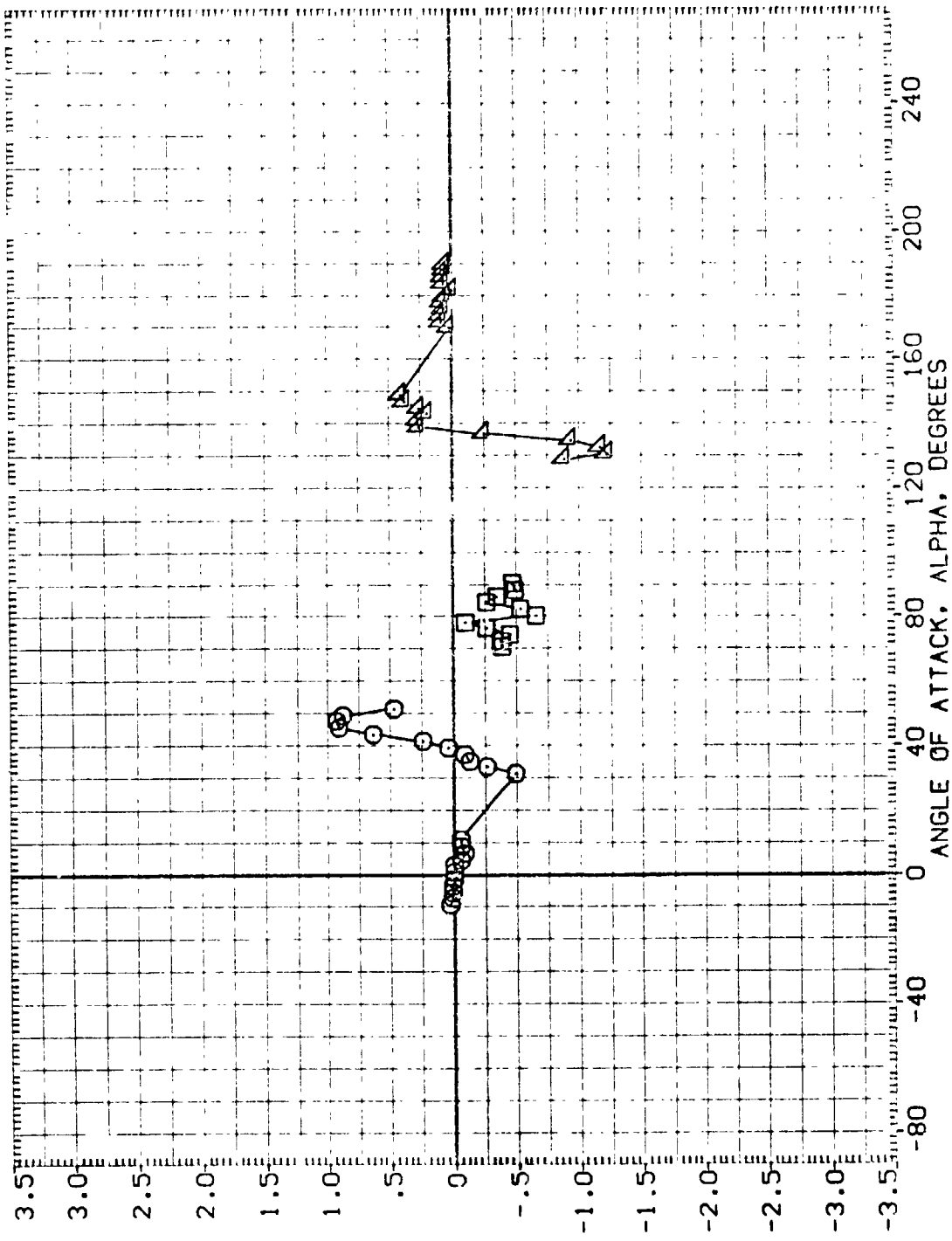


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(B) MACH = .50

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000
.000

DATA SET SYMBOL

(A1H001)	MSFC TVT604 (SABF)	SRB CLEAN	V/RINGS
(A1H001)	MSFC TVT604 (SABF)	SRB CLEAN	V/RINGS
(A1H008)	DATA NOT AVAILABLE		
(A1H001)	DATA NOT AVAILABLE		
(A1H001)	MSFC TVT604 (SABF)	SRB CLEAN	V/RINGS

CONFIGURATION DESCRIPTION

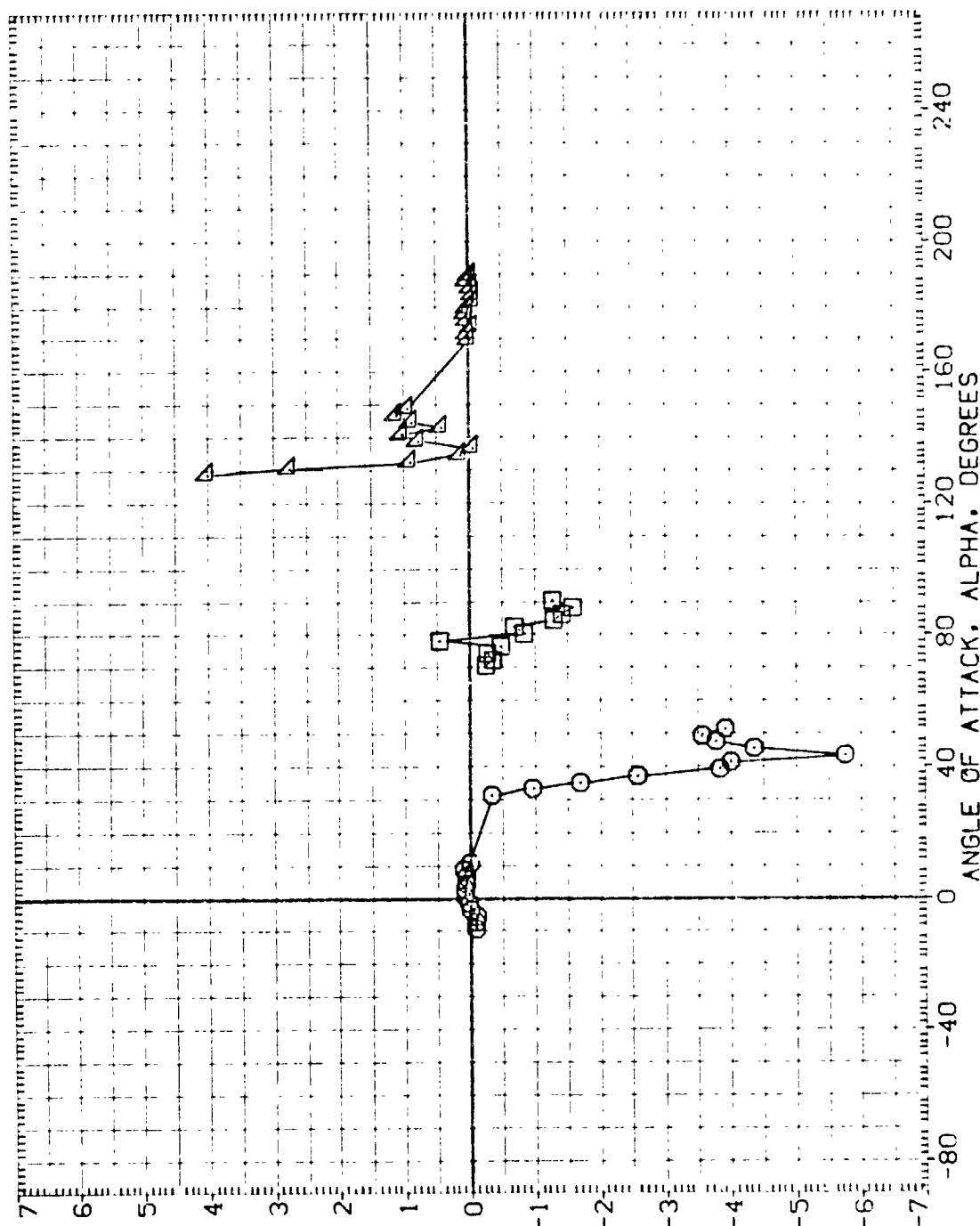


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(B)MACH = .50



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50. IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .6000 60. IN.
(A1H408)	DATA NOT AVAILABLE	.000	BREF .6000 60. IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP 5.7210 57.21 IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 0.00 IN.
		.000	SCALE .0055

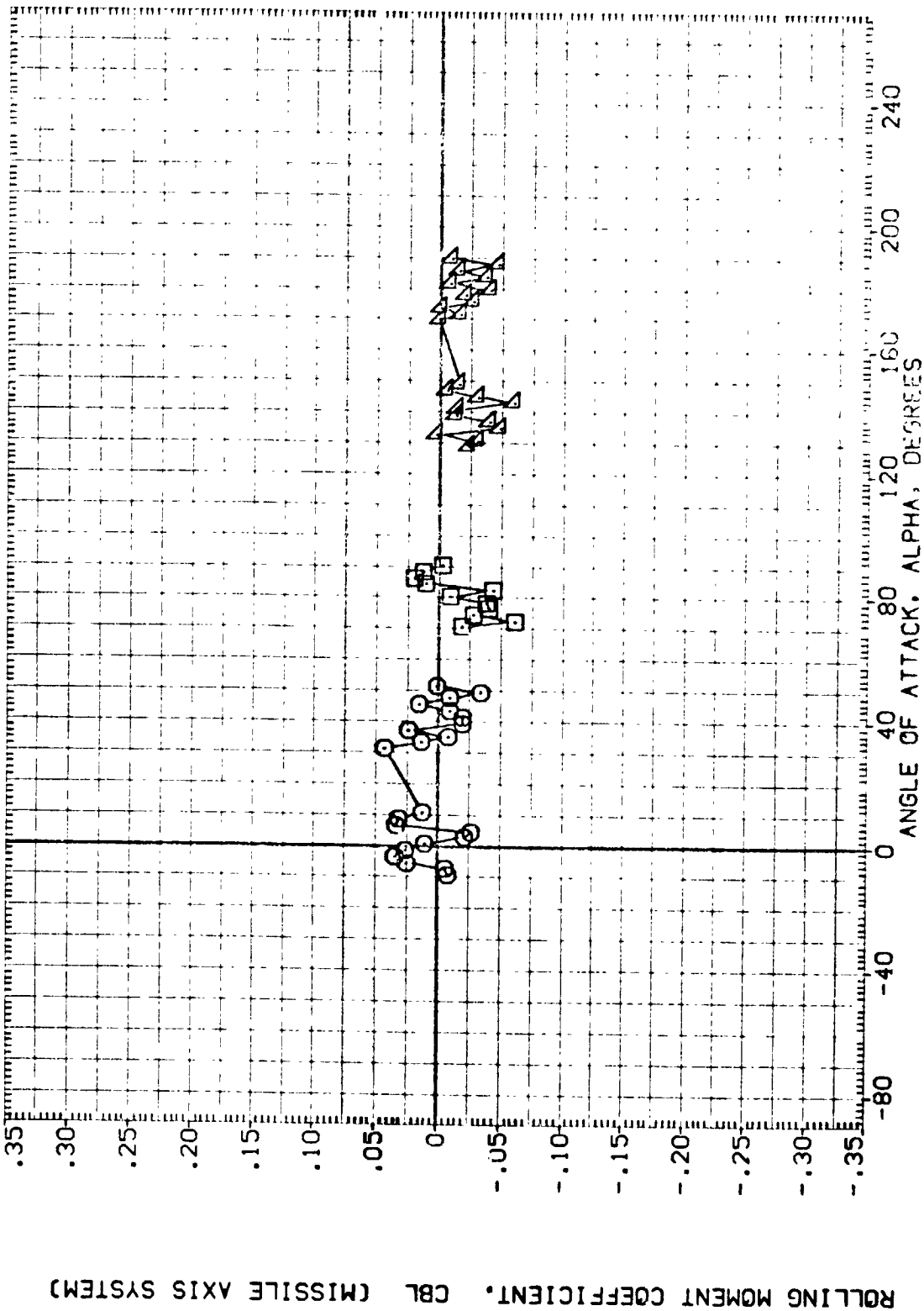


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(B)MACH = .50

REFERENCE INFORMATION  
 SREF 50.30 50. IN.  
 LREF 8000 IN.  
 BREF 8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI .000  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (AI-HA01) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (AI-H601) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (AI-H008) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (AI-H001) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (AI-H001) MSFC TVT604 (SABF) SRB CLEAN V/RINGS

NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

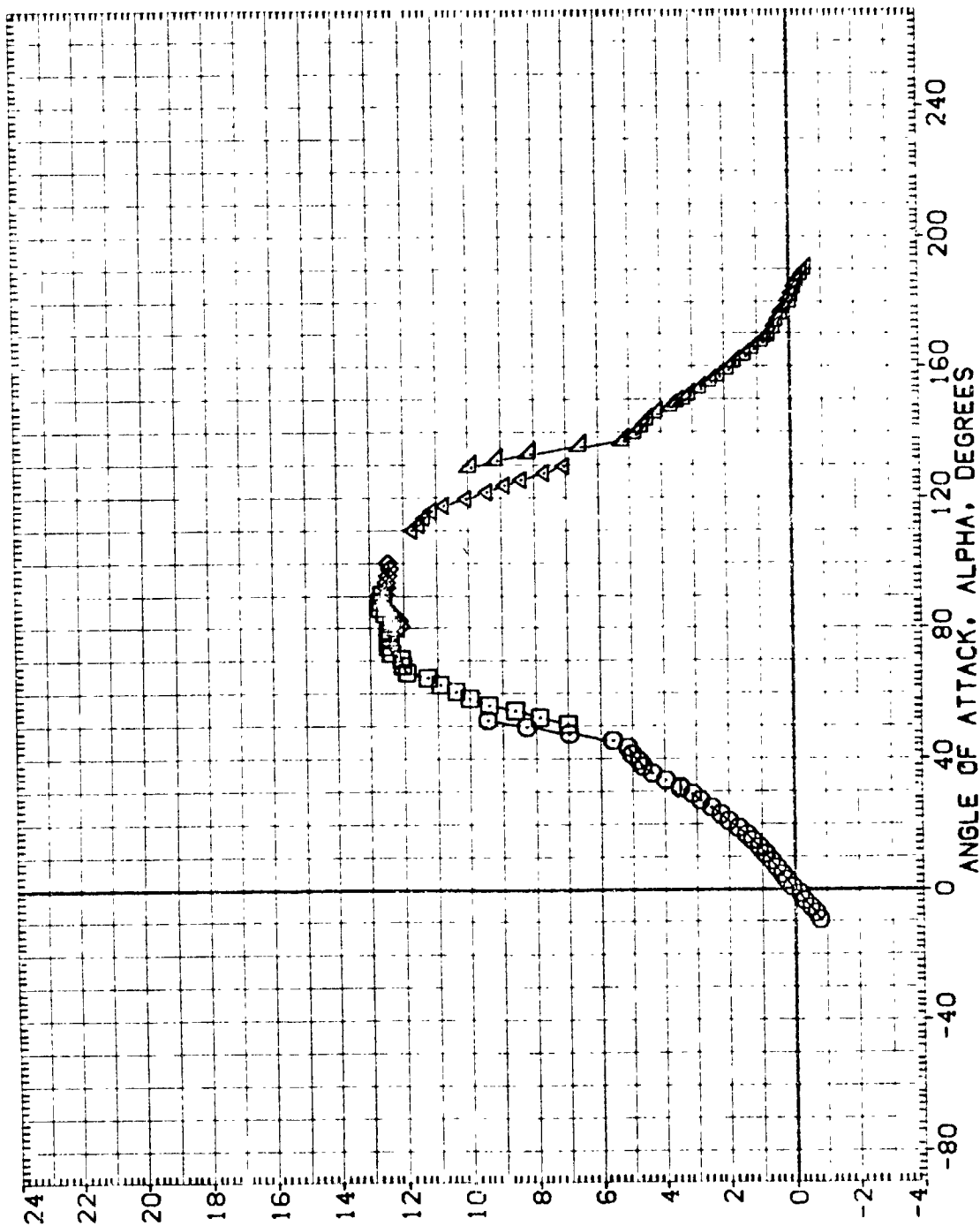


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SO IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP .7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

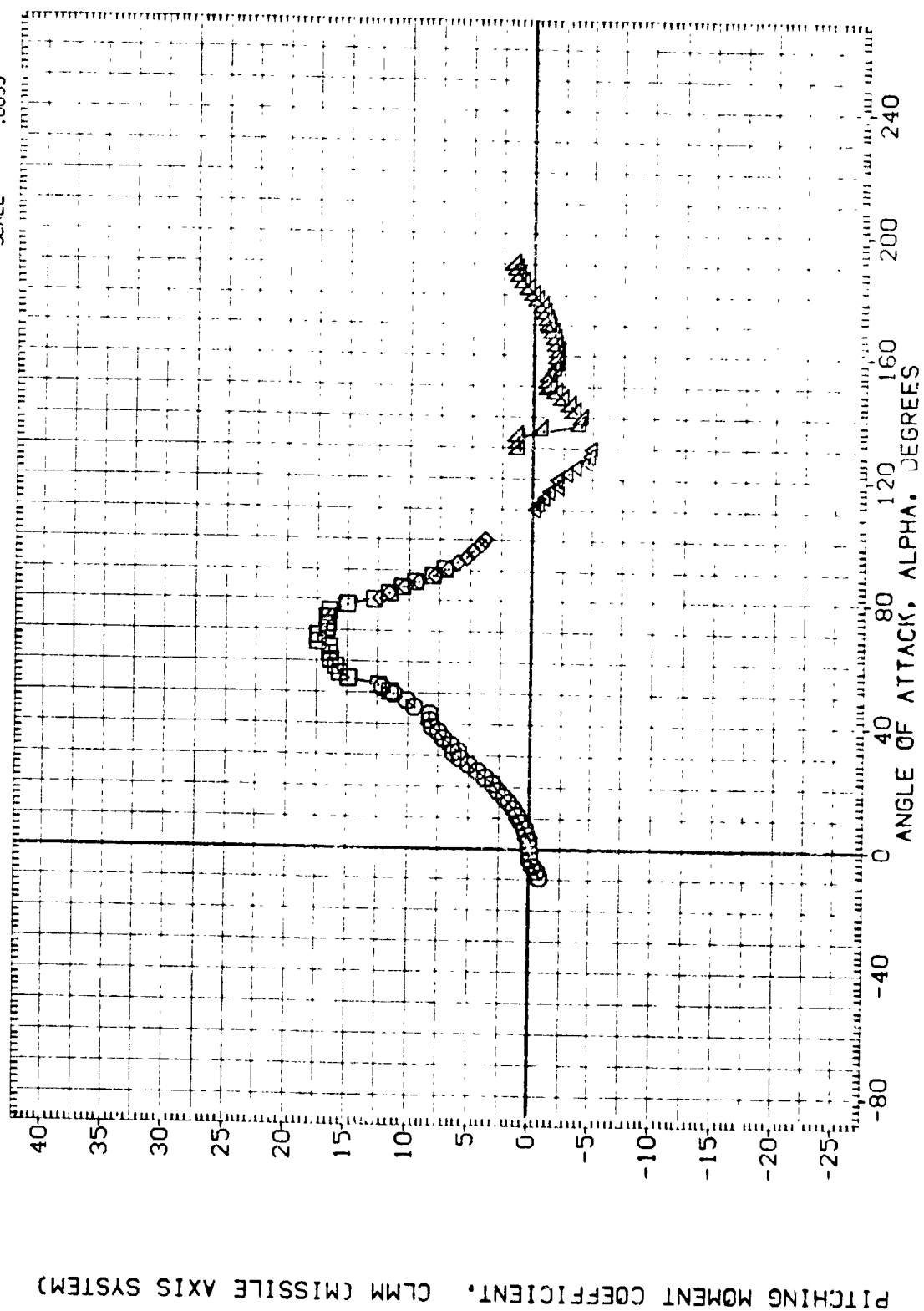


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(C)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	BREF .8000 IN.
(A1H004)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	XMRP 5.7210 IN. XS
(A1H005)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
(A1H006)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

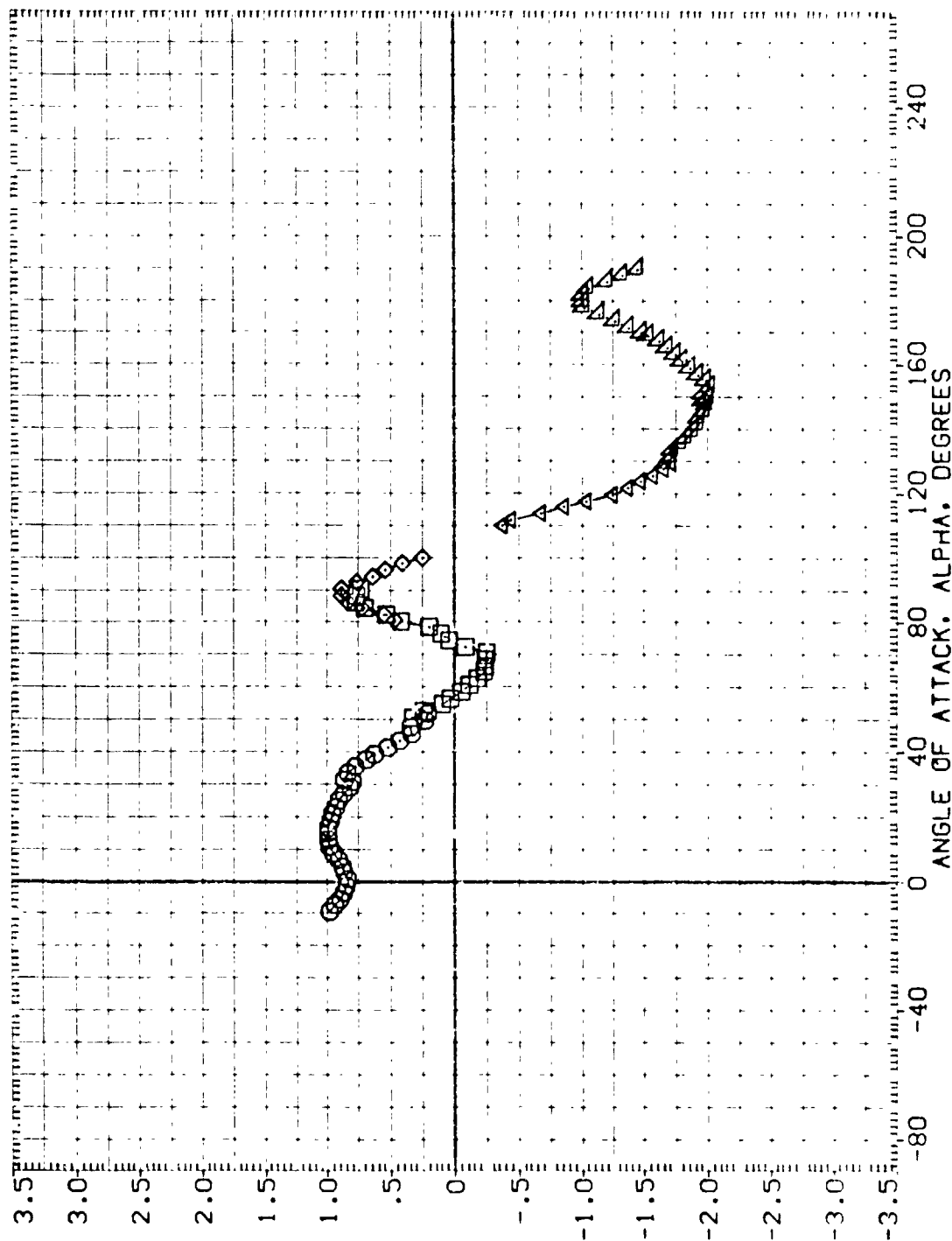


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A11H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .50 IN.
(A11H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A11H003)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A11H004)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A11H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A11H006)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

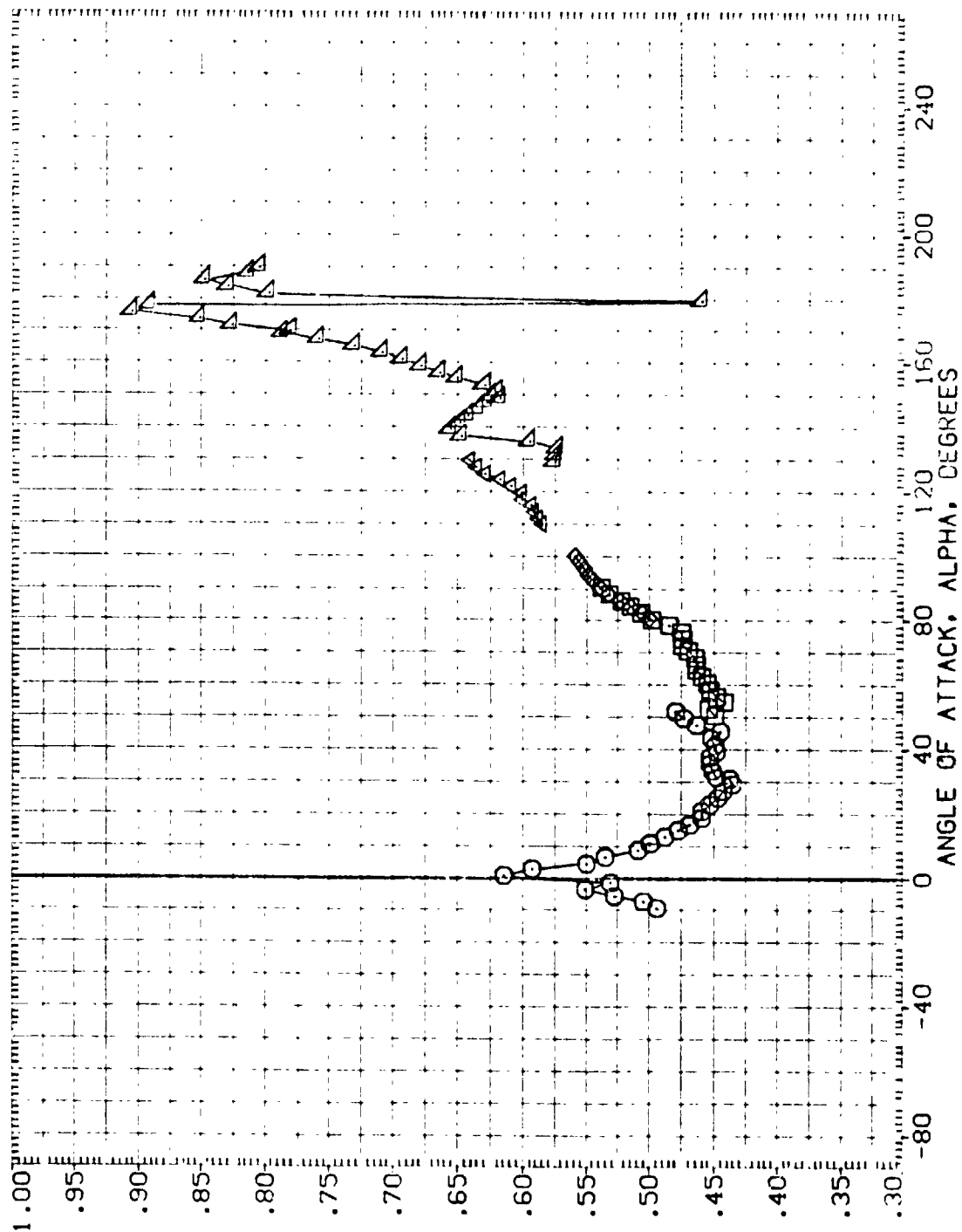


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AI-H01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ.IN.
(AI-H01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(AI-H08)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	BREF 5.7210 IN. XS
(AI-H01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
(AI-H01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

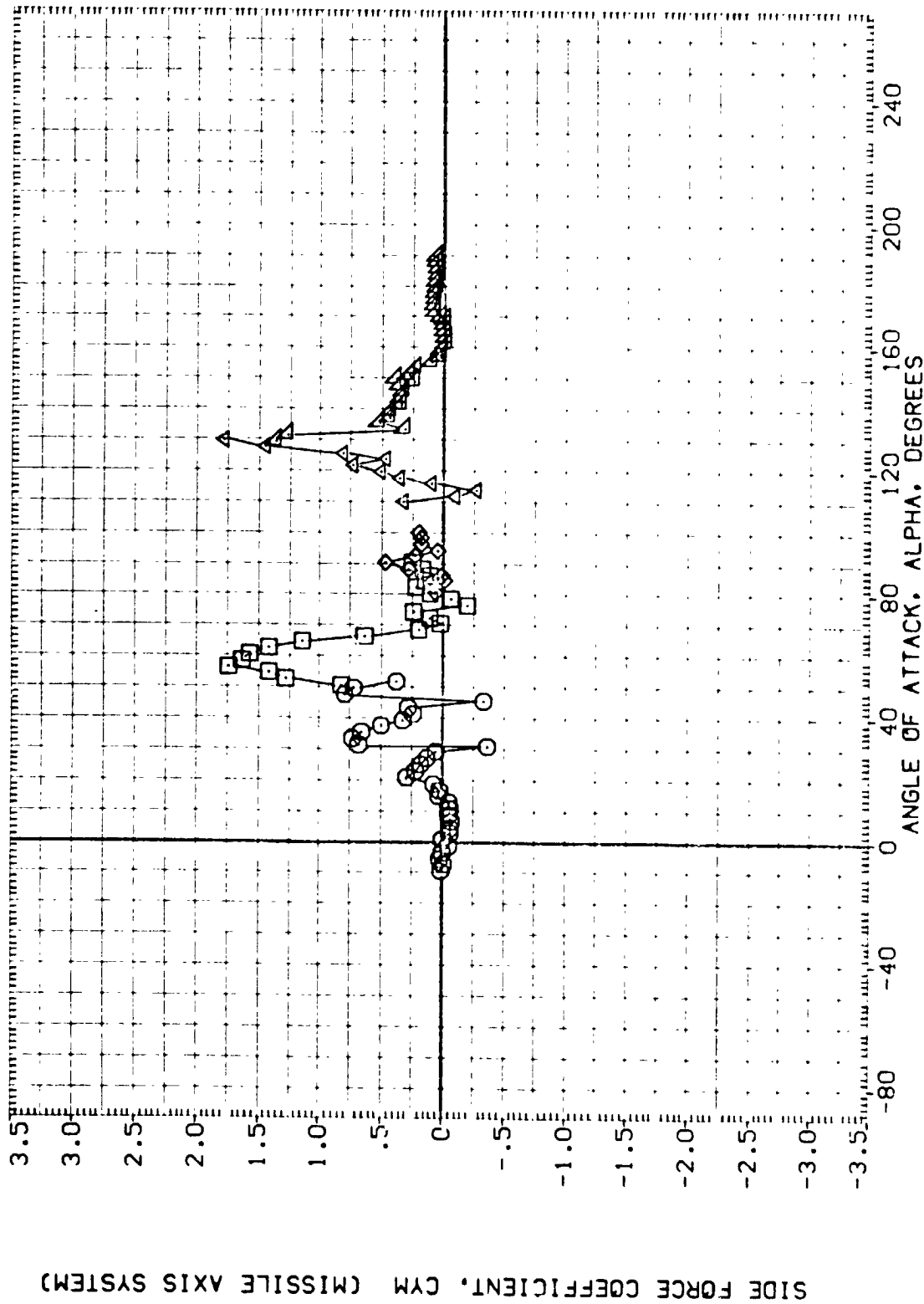


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
0000	MSFC TVT604 (SABF) SRS V/R NGS	.000	SREF 90 IN.
0001	MSFC TVT604 (SABF) SRS V/R NGS	.000	LREF 8000 IN.
0002	MSFC TVT604 (SABF) SRS V/R NGS	.000	BREF 8000 IN.
0003	MSFC TVT604 (SABF) SRS V/R NGS	.000	XREF 57210 IN.
0004	MSFC TVT604 (SABF) SRS V/R NGS	.000	YREF 10000 IN.
0005	MSFC TVT604 (SABF) SRS V/R NGS	.000	ZREF 10000 IN.
0006	MSFC TVT604 (SABF) SRS V/R NGS	.000	SCALE .0055

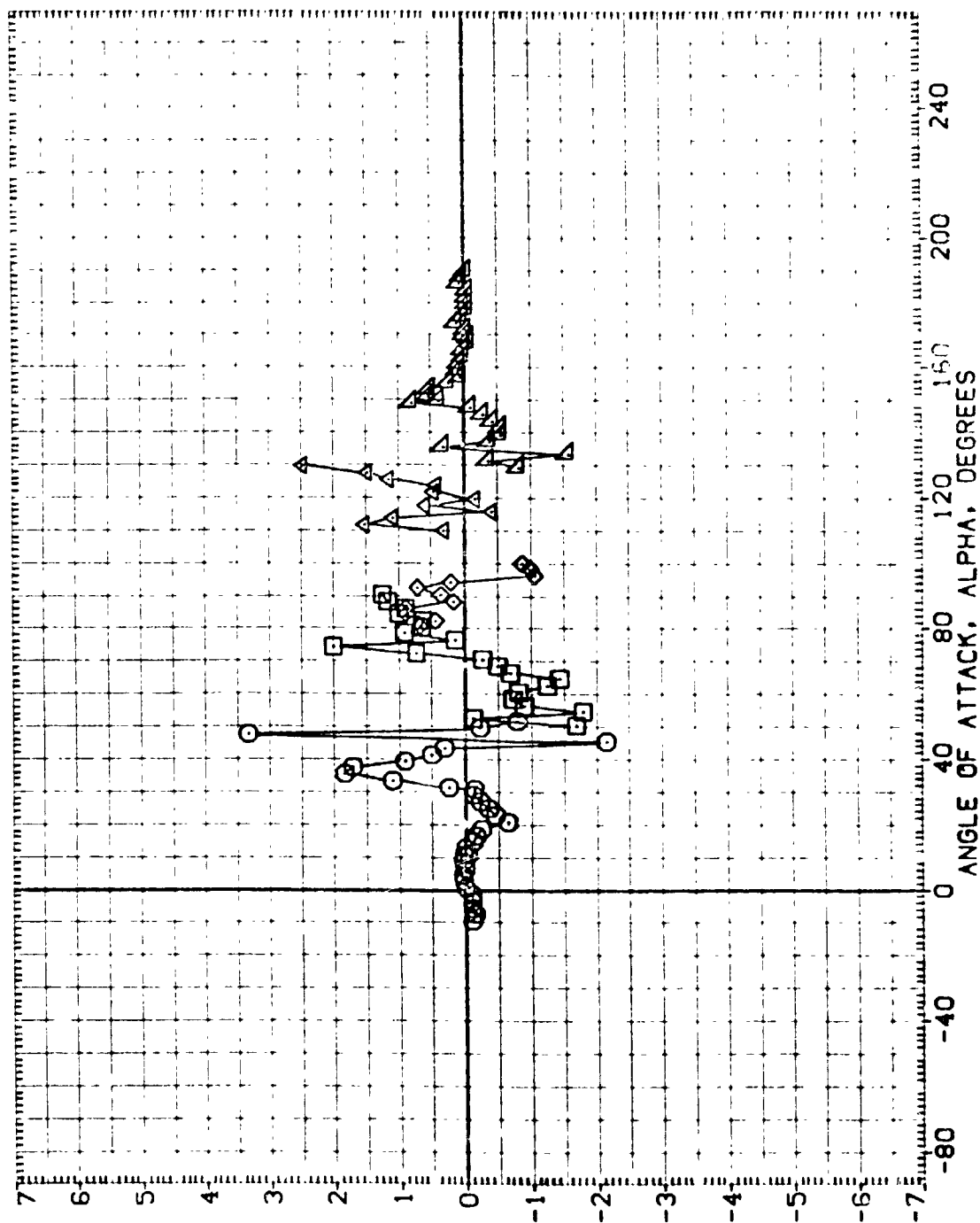


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AF1 RINGS

$$C)MACH = .60$$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	SREF .50:00 SO:IN.
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	LREF .80:00 IN.
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	BREF .80:00 IN.
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	YMRP 5 72:0 IN. YS
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .00:00 IN. ZS
(A1H001)	MSFC TV1504 (SABF) SRB CLEAN W/RINGS	.000	SCALE .00:75

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

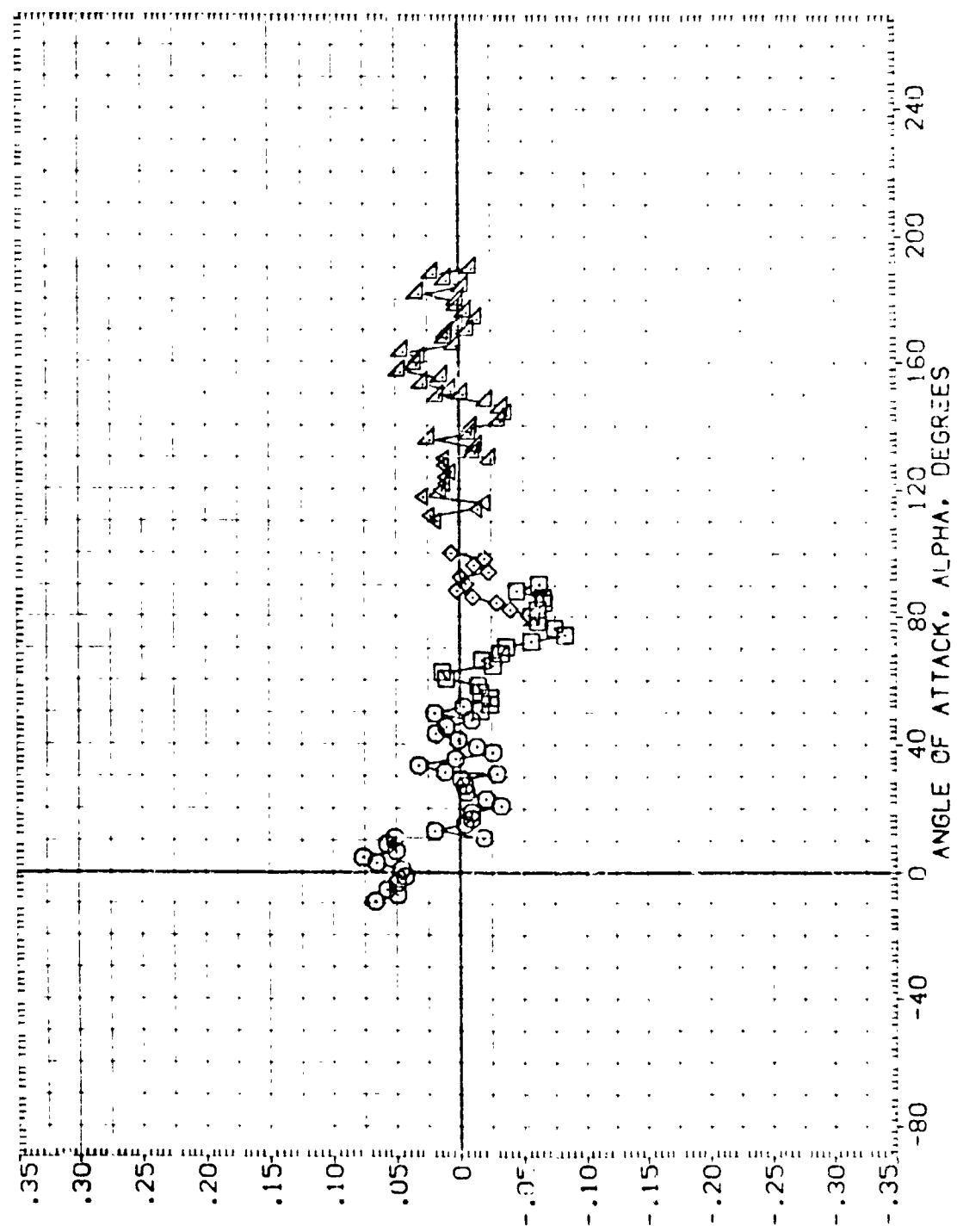


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(C)MACH = .60 PAGE 21



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	BREF .8000 IN.
(A1H401)	DATA NOT AVAILABLE	.000	XPRP 5 7210 IN.
(A1H401)	DATA NOT AVAILABLE	.000	YPRP .0000 IN.
(A1H401)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	ZPRP .0000 IN.
			SCALE .0055

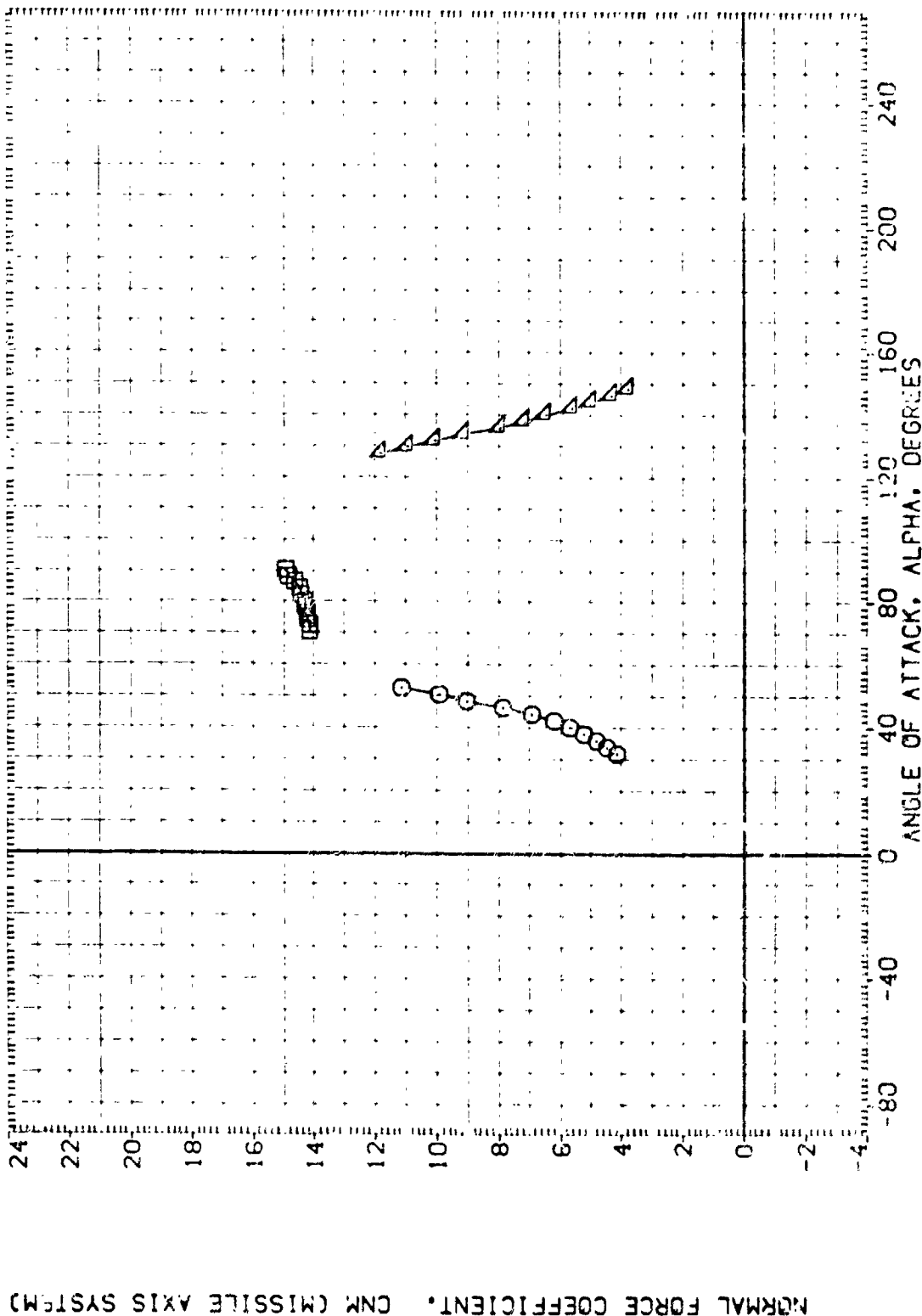
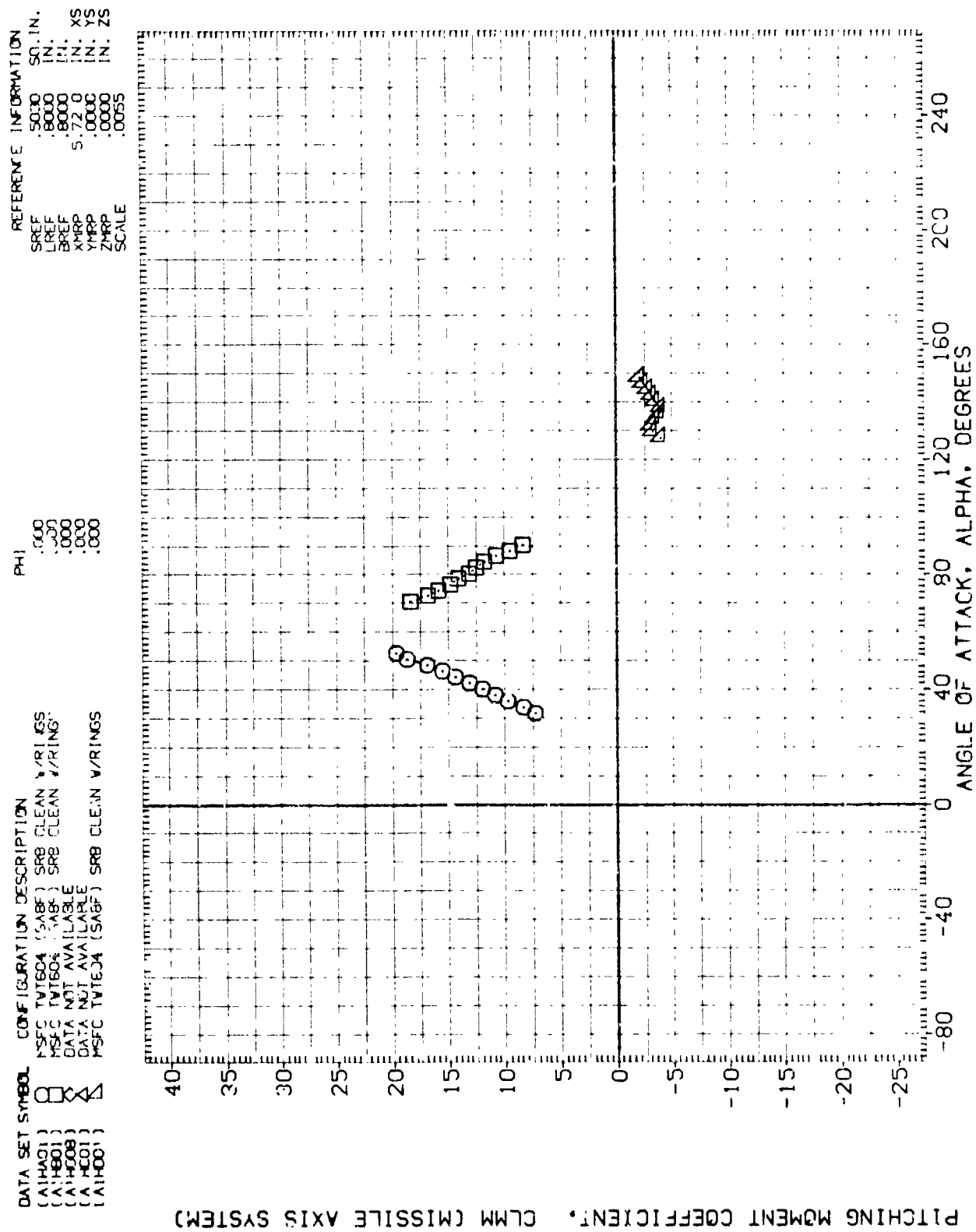


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT R10S  
(C)MACH = .80


$$(D)MACH = .30$$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HA01)	MSFC TWTB04 (SABF) SRB CLEAN V/RINGS	.000	SREF 5030 SQ. IN.
(A1HB01)	MSFC TWTB04 (SABF) SRB CLEAN V/RINGS	.000	LREF 8000 IN.
(A1HC08)	DATA NOT AVAILABLE	.000	BREF 9700 IN.
(A1HD01)	DATA NOT AVAILABLE	.000	5.7210 IN. XS
(A1HE01)	MSFC TWTB04 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

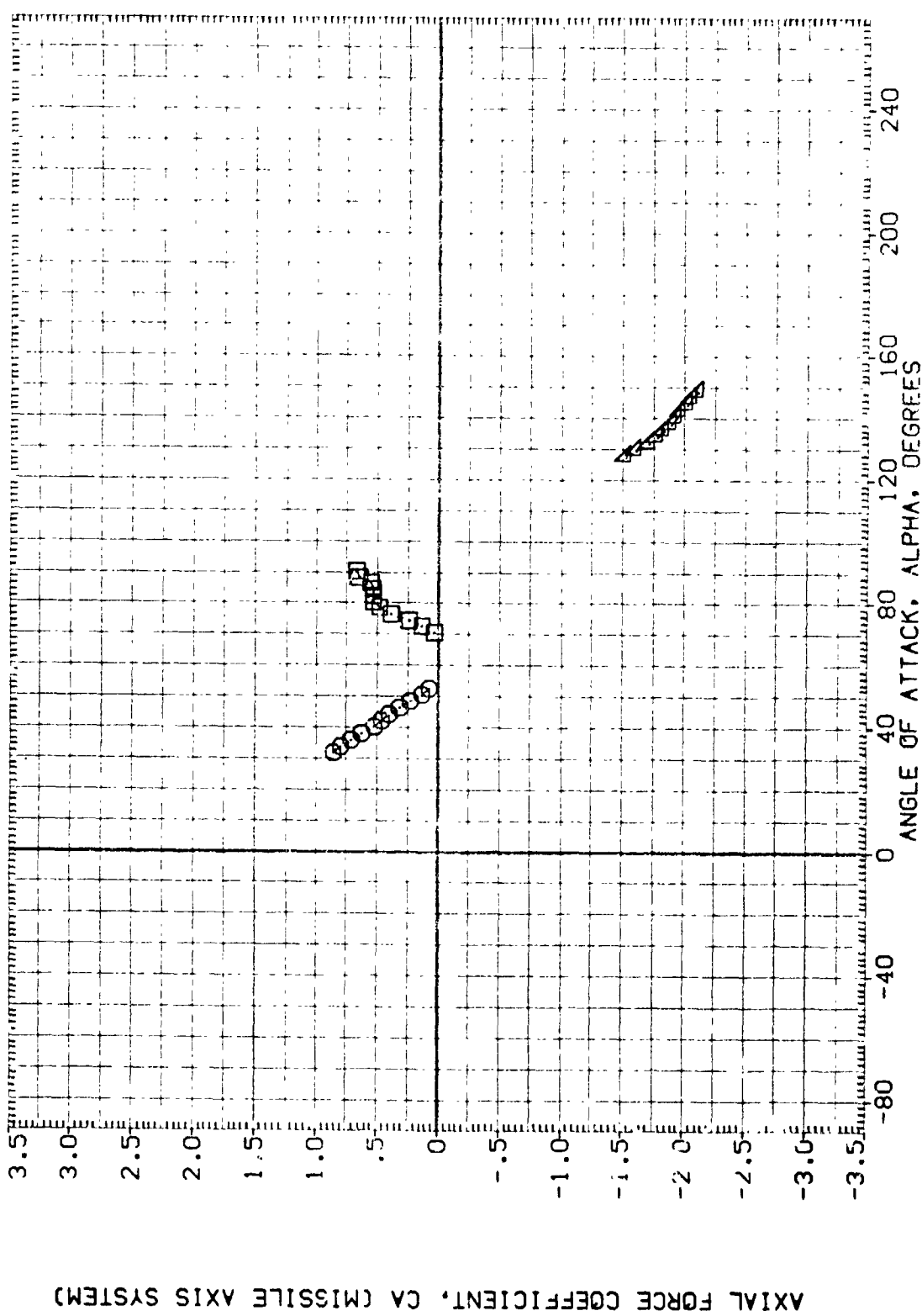


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .80

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H601)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0035

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

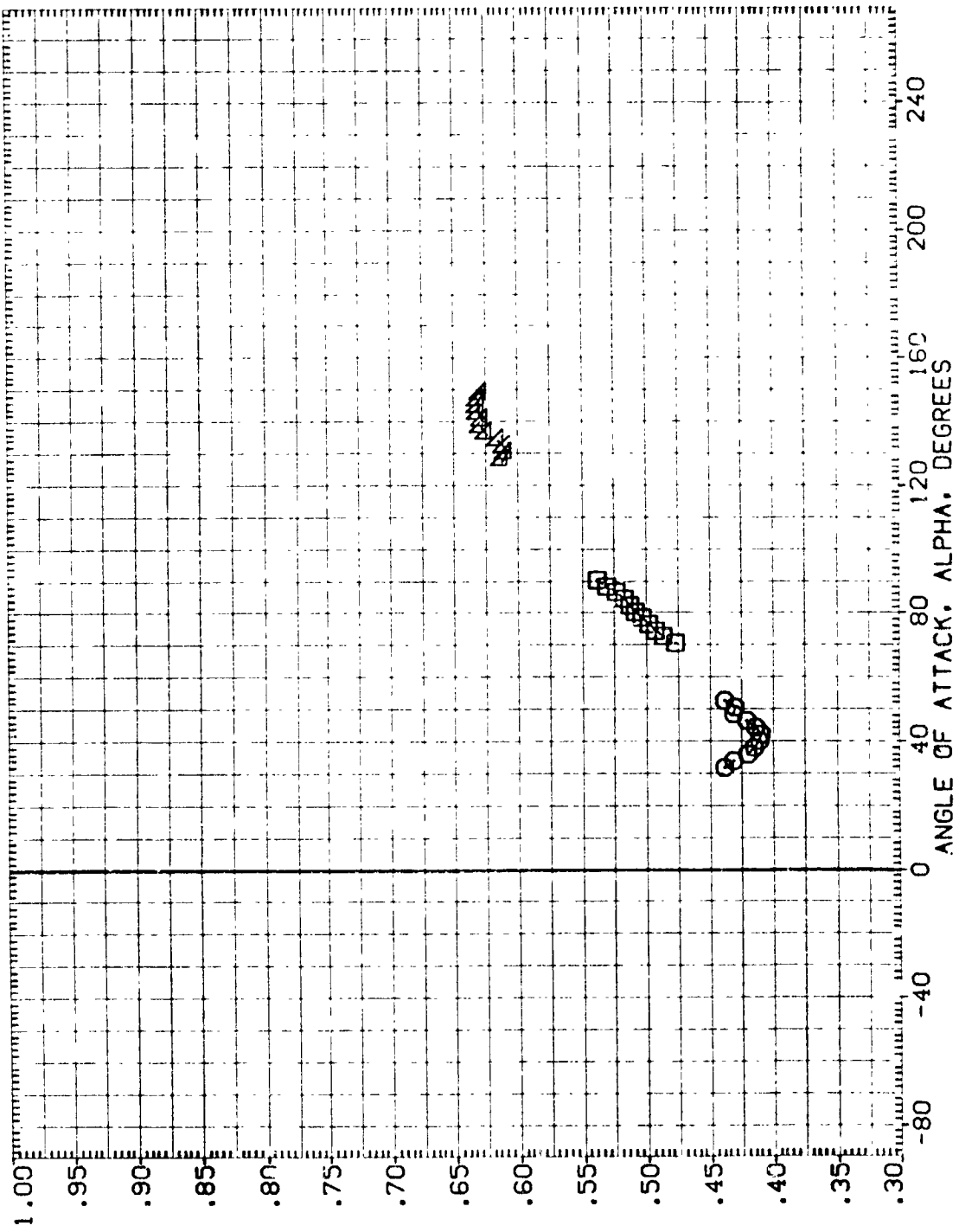


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF 5030 50. IN.
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF 18000 IN.
(A1H408)	DATA NOT AVAILABLE	.000	BREF 18000 IN.
(A1H401)	DATA NOT AVAILABLE	.000	XMRP 7710 IN. XS
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP 0000 IN. YS
			ZMRP 0000 IN. ZS
			SCALE .0055

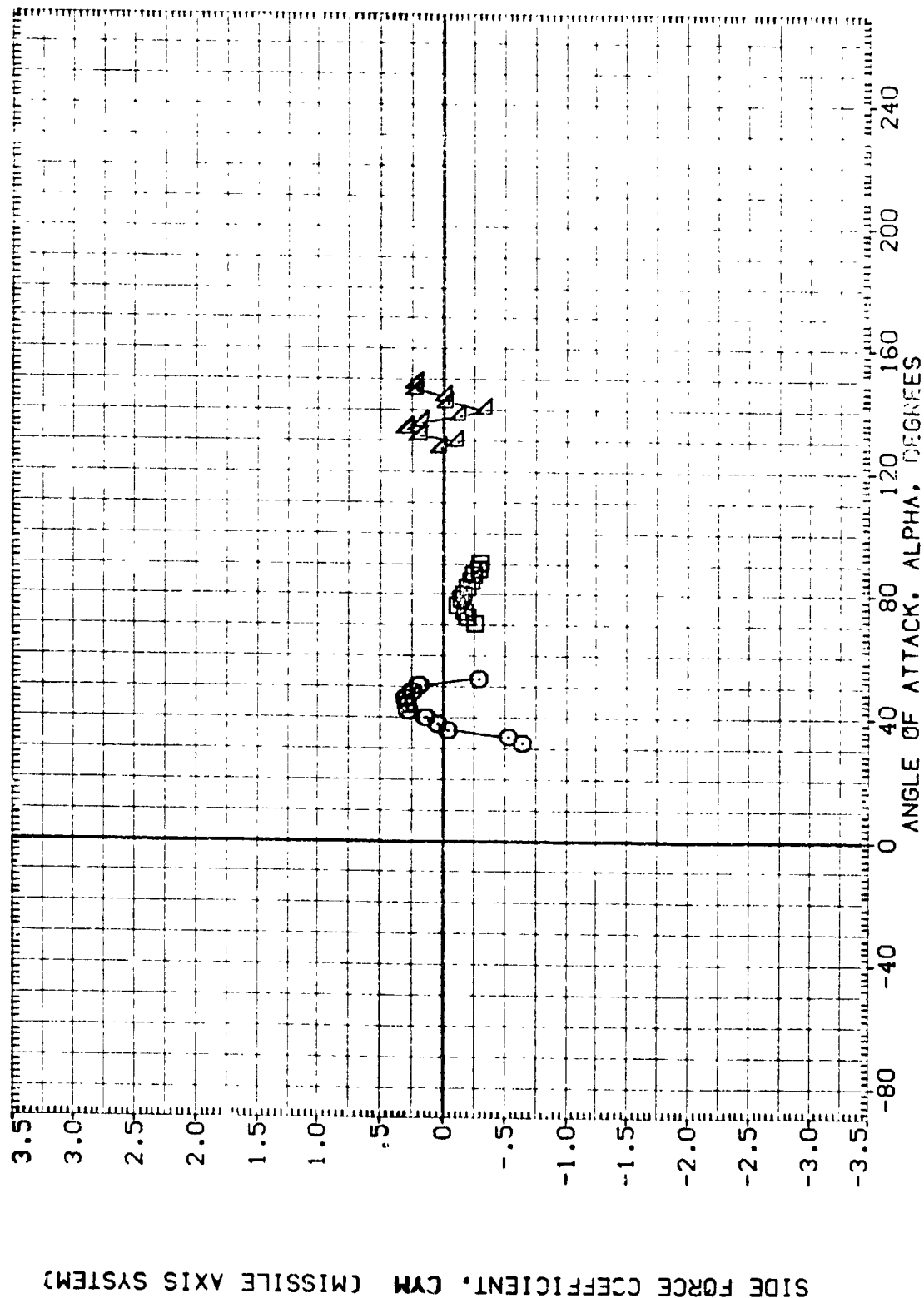


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(O)MACH = .80

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 IN.
(A1H002)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H004)	DATA NOT AVAILABLE	.000	YMRP 5.7210 IN.
(A1H005)	MSFC TWT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN.
(A1H006)		.000	SCALE .0055

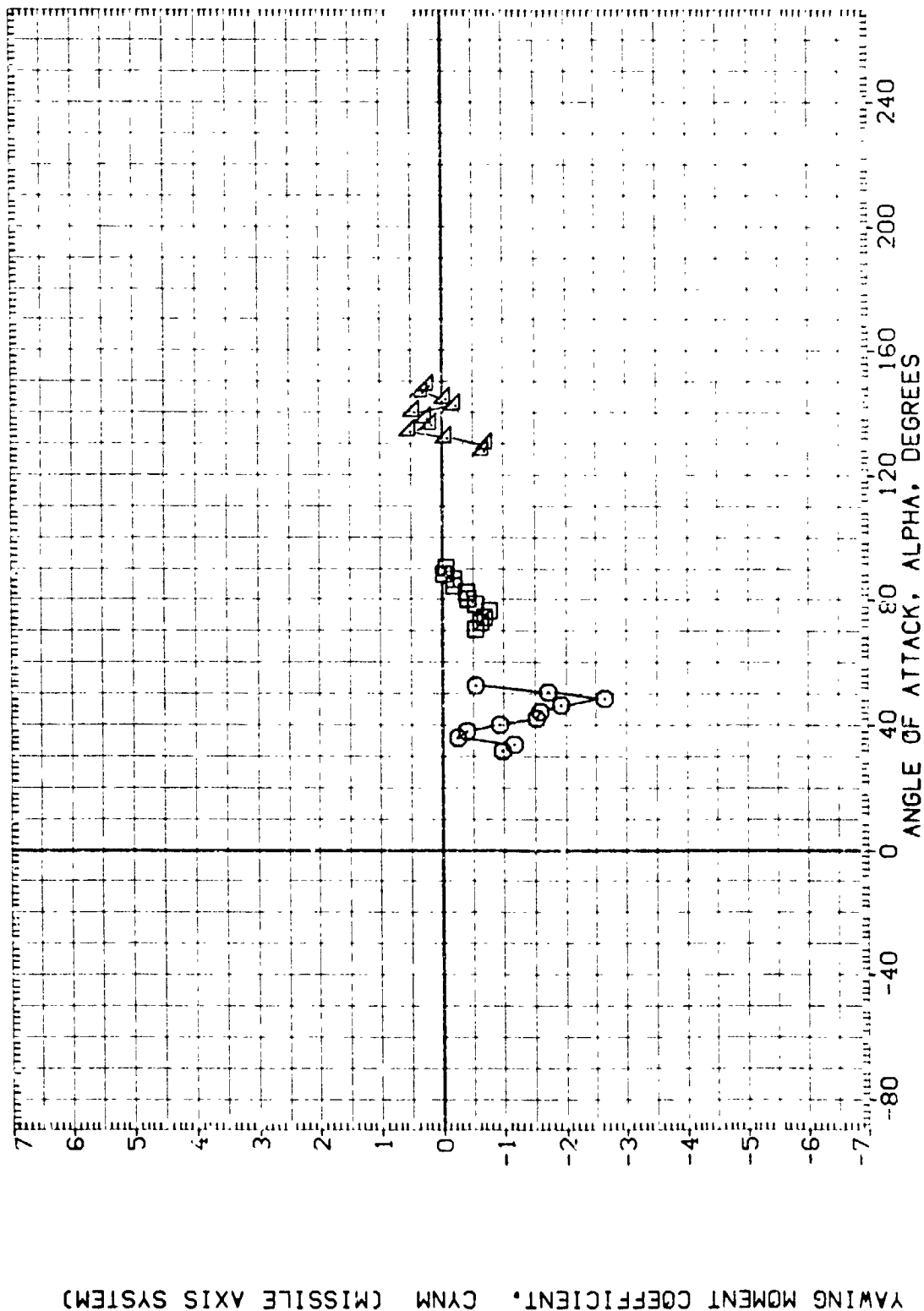


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .80

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH001)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(AIH001)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

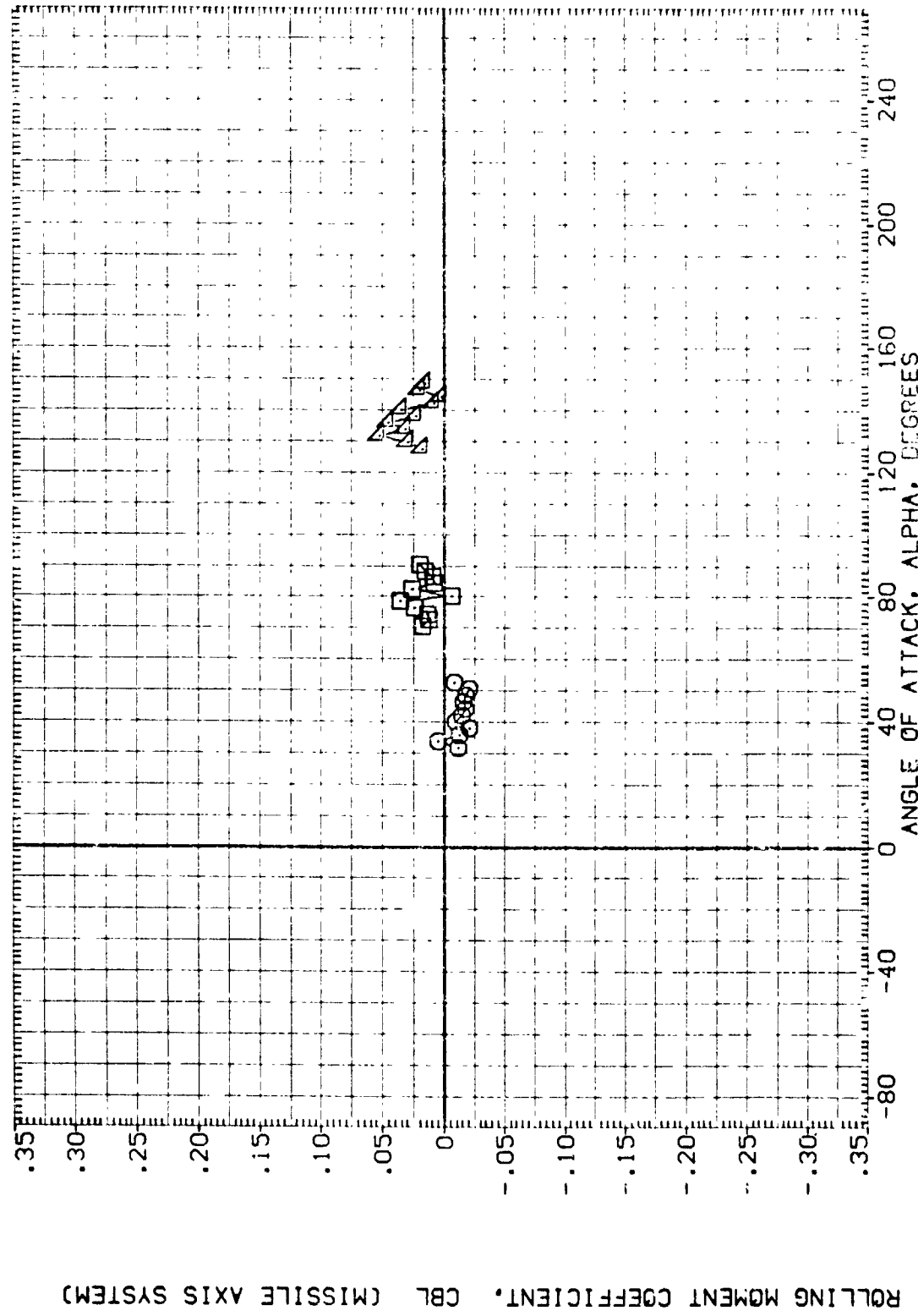


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
 (0)MACH = .80

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AI-H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(AI-H002)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(AI-H003)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	BREF .9000 IN.
(AI-H004)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	XMRF 5.7210 IN. XS
(AI-H005)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRF .0000 IN. YS
(AI-H006)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRF .0000 IN. ZS
			SCALE .0055

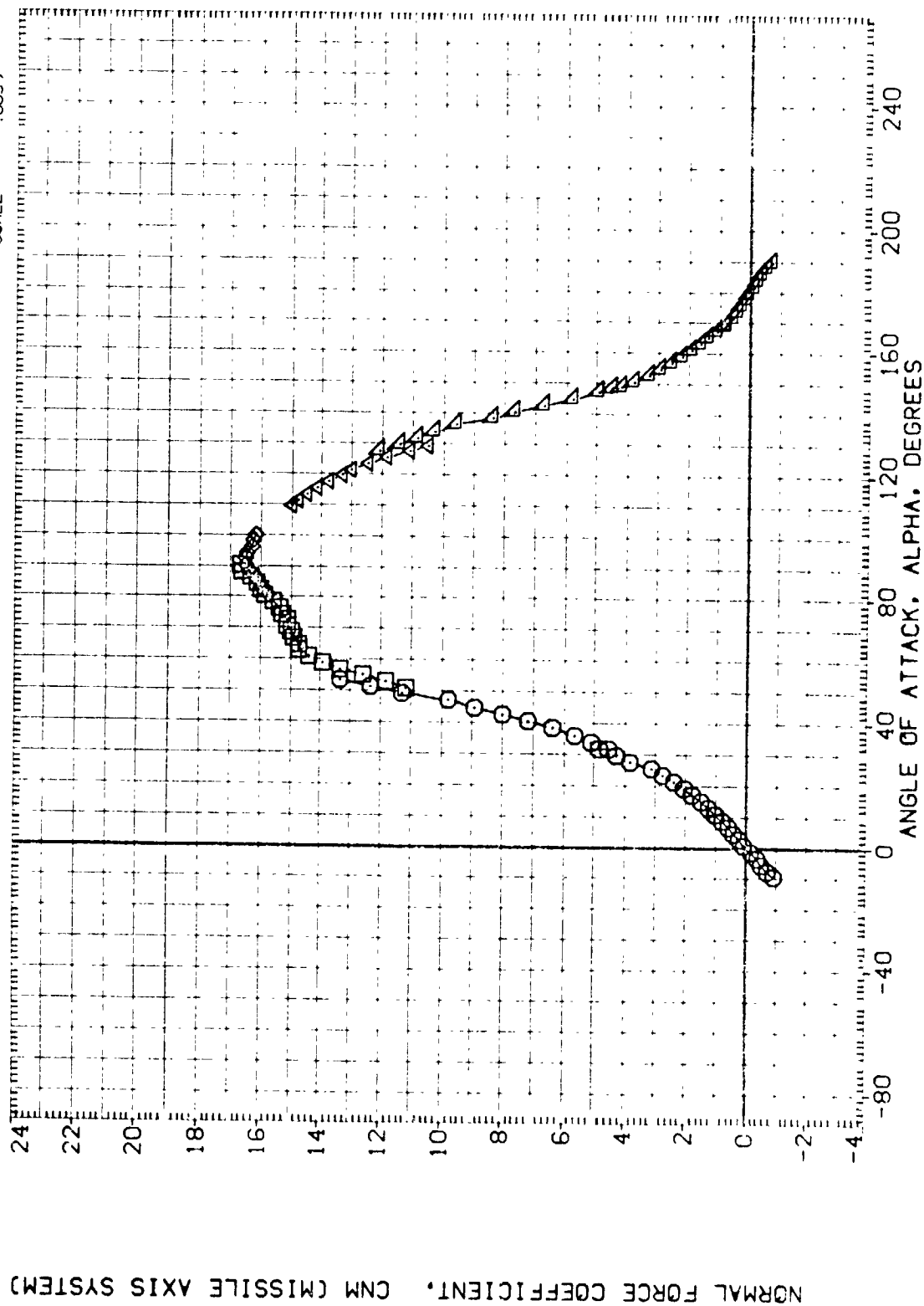


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(E)MACH = .30



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SRBF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LRBF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BRBF .8000 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XRBF 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

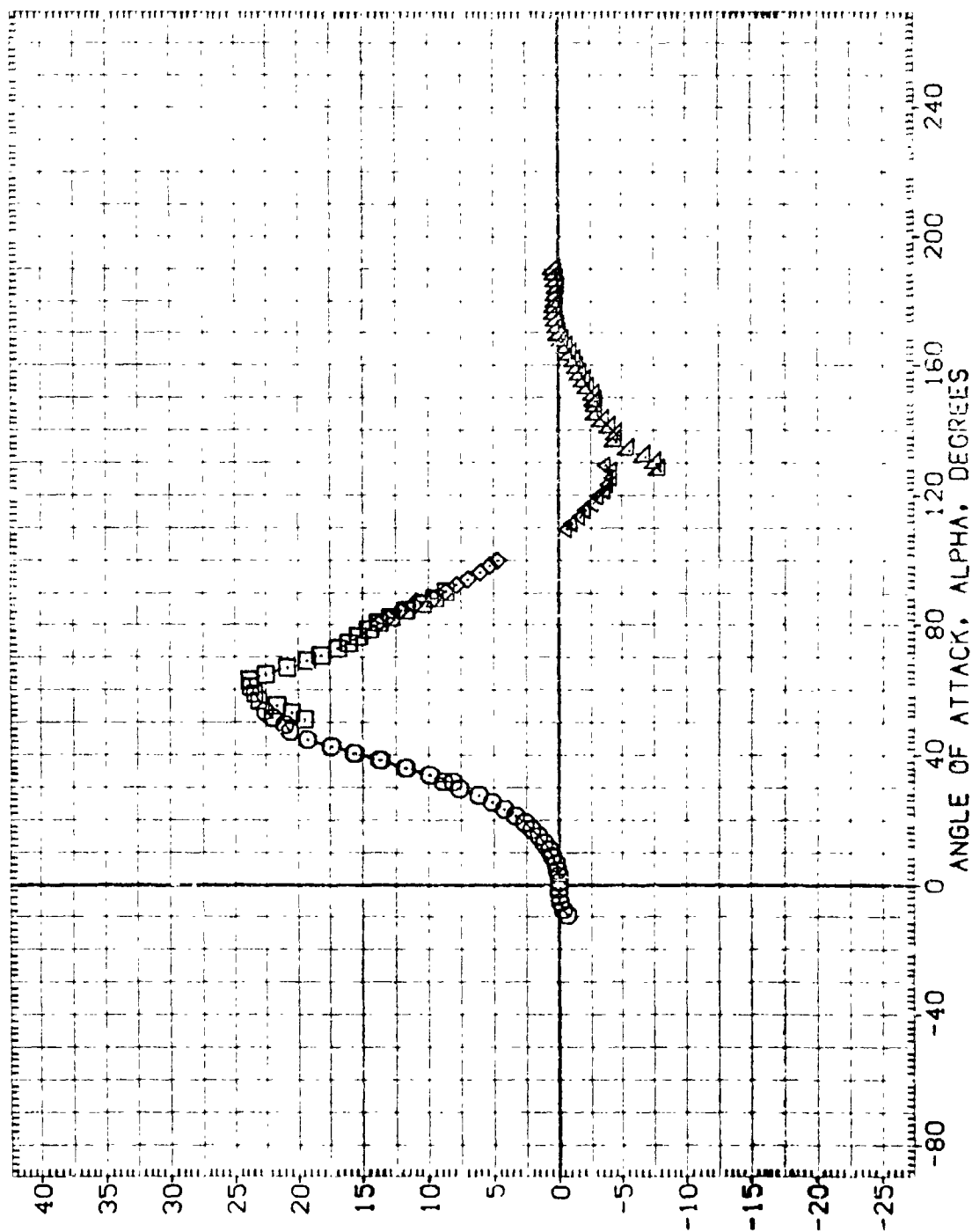


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHAD1)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50. IN.
(AIH001)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH008)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIH001)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(AIH001)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. ZS
(AIH001)	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

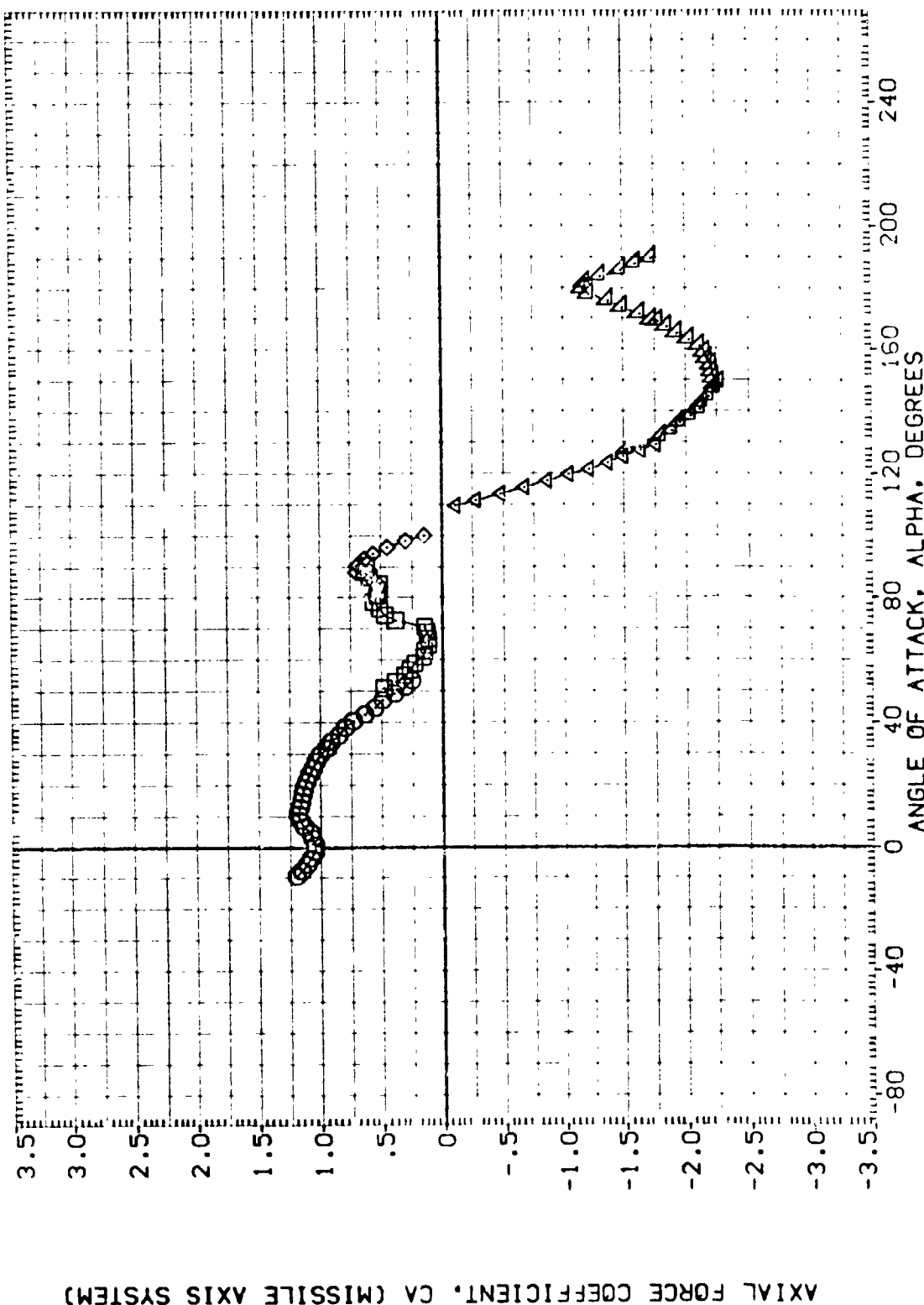


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(AIH001)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	SREF .5030 50 IN.
(AIH001)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH008)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	BREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	XMRP 5.7210 IN. YS
(AIH001)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(AIH001)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

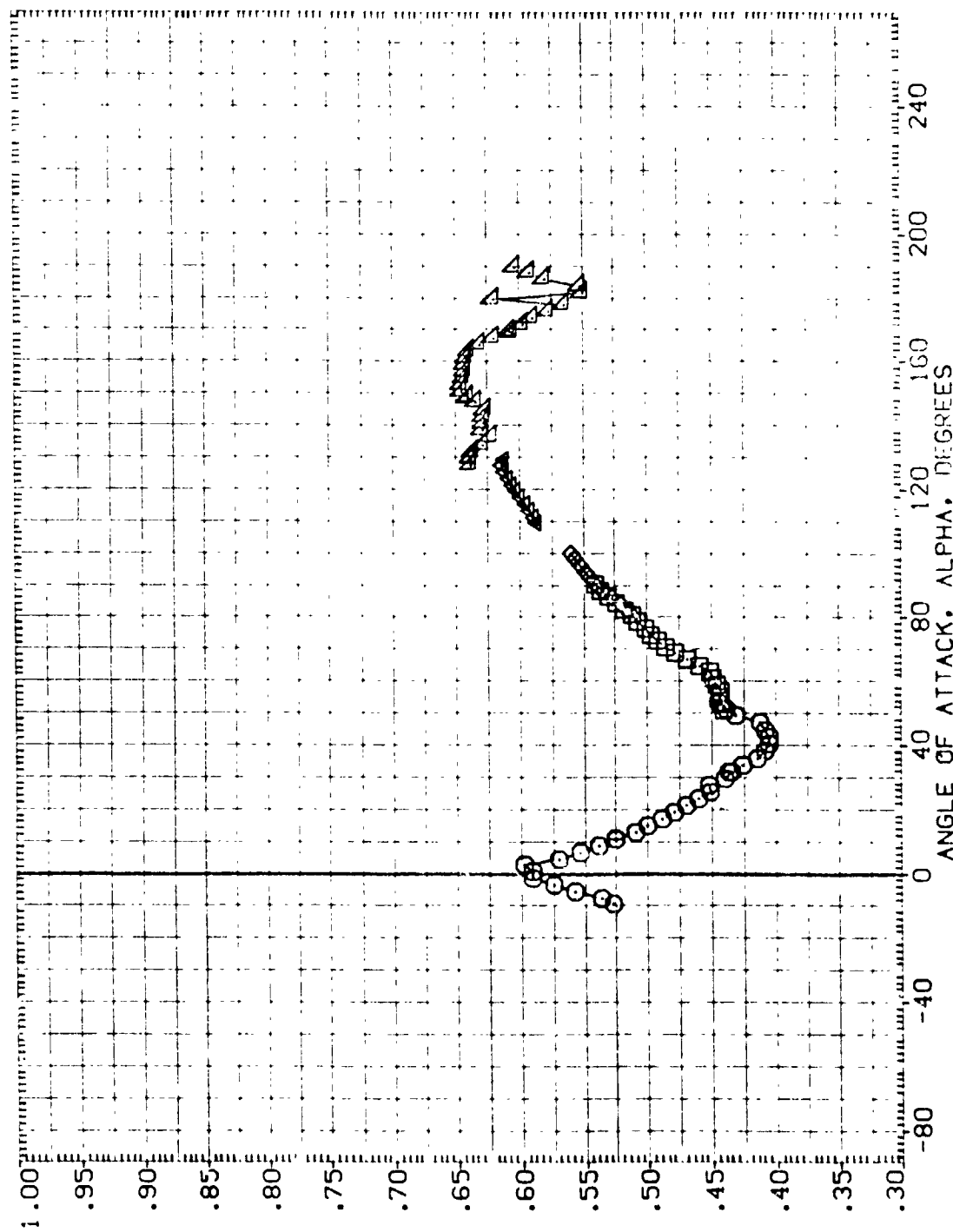


FIGURE 18. STATIC STABILITY CHARACTER OF SR8 W/CLEAN ATTACH AND AFT RINGS

(E)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

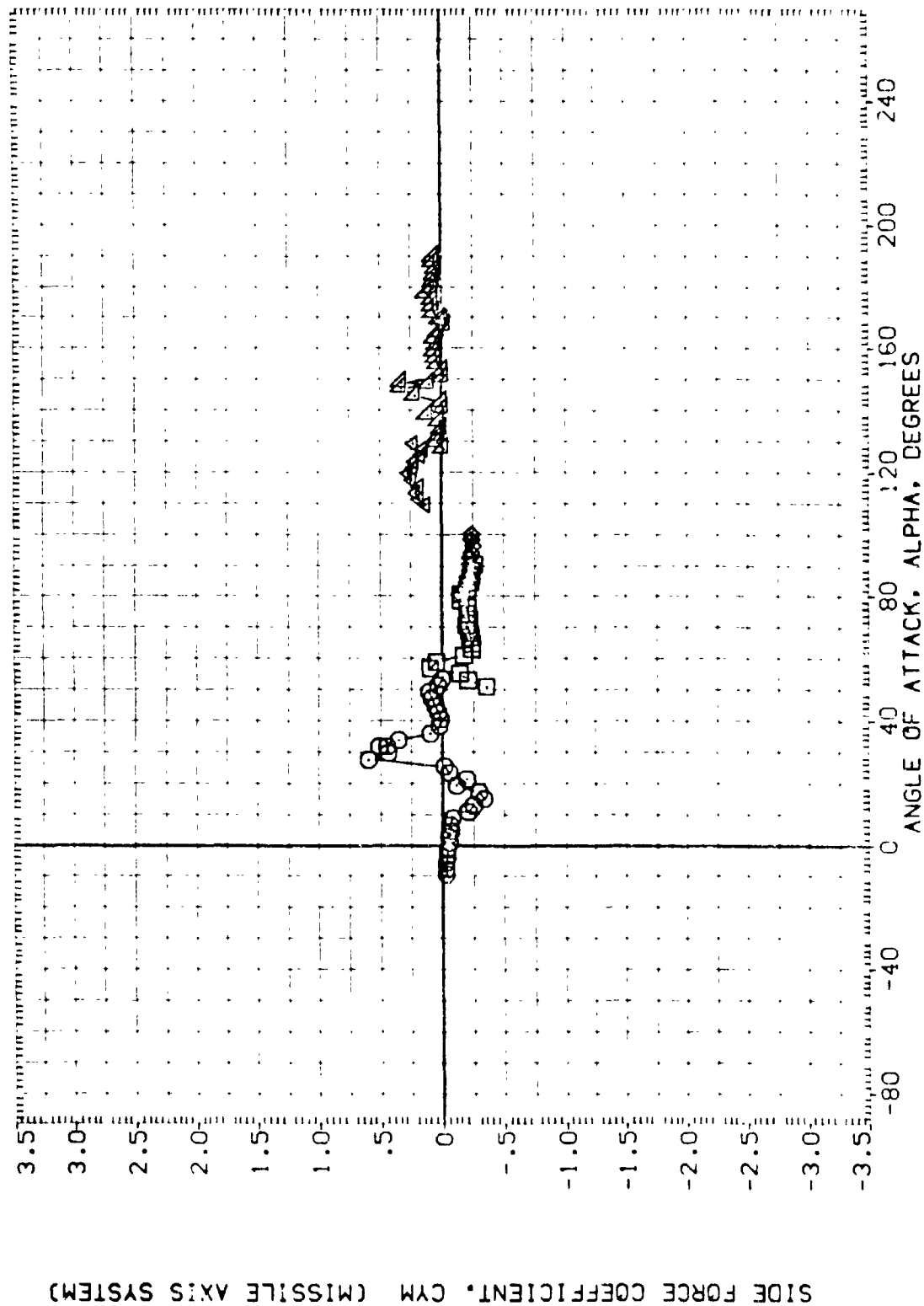


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(MACH = .90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE	ORIENTATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF	SO. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF	SO. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF	SO. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP	5. IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP	SO. IN. YS
			SCALE	.0055

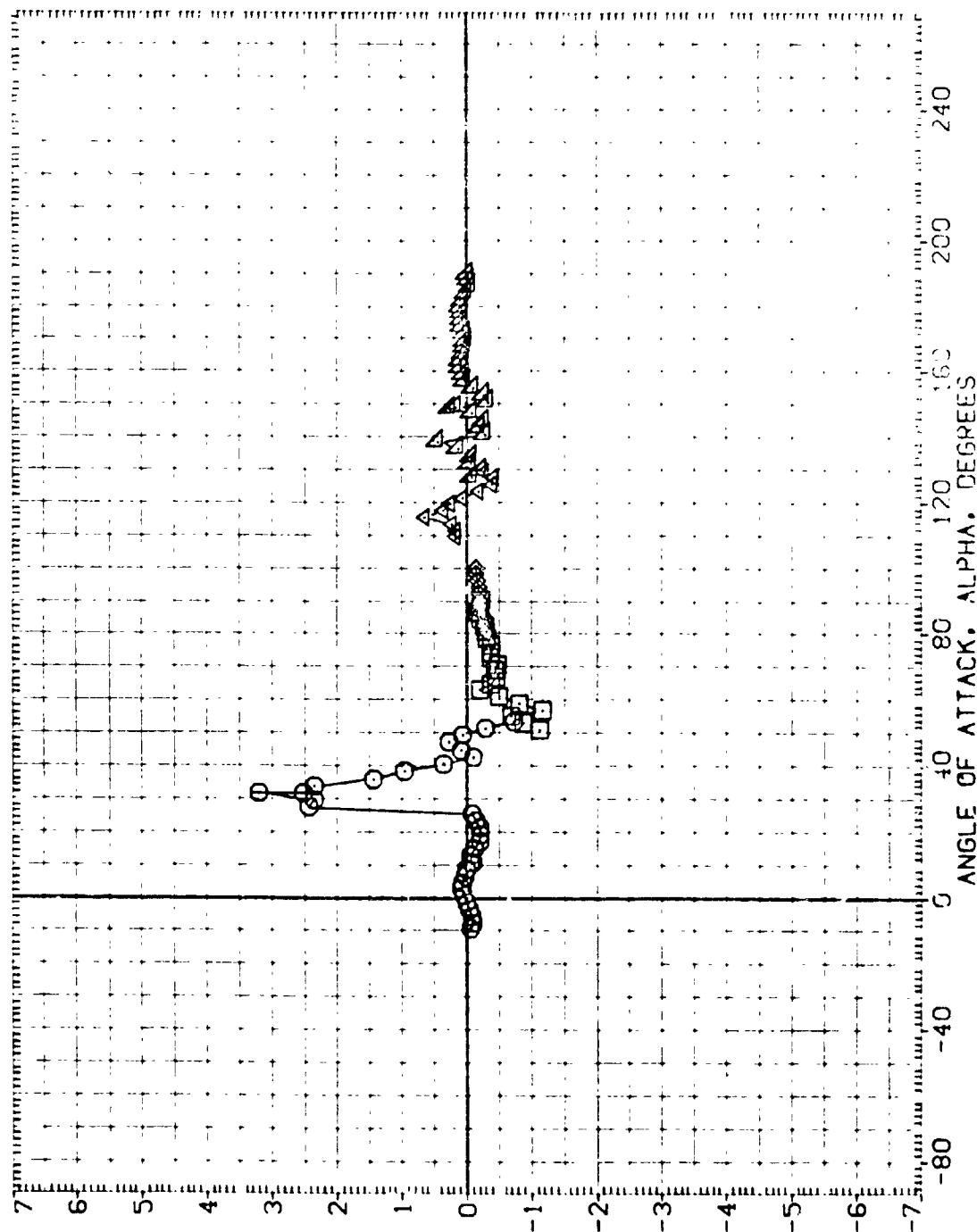


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE	UNIT OR ORIGIN
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF	.0000 IN. SO. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LPREF	.0000 IN. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BRPF	.0000 IN. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XRPF	5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YRPF	.0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZRPF	.0000 IN. ZS
			SCALE	.0055

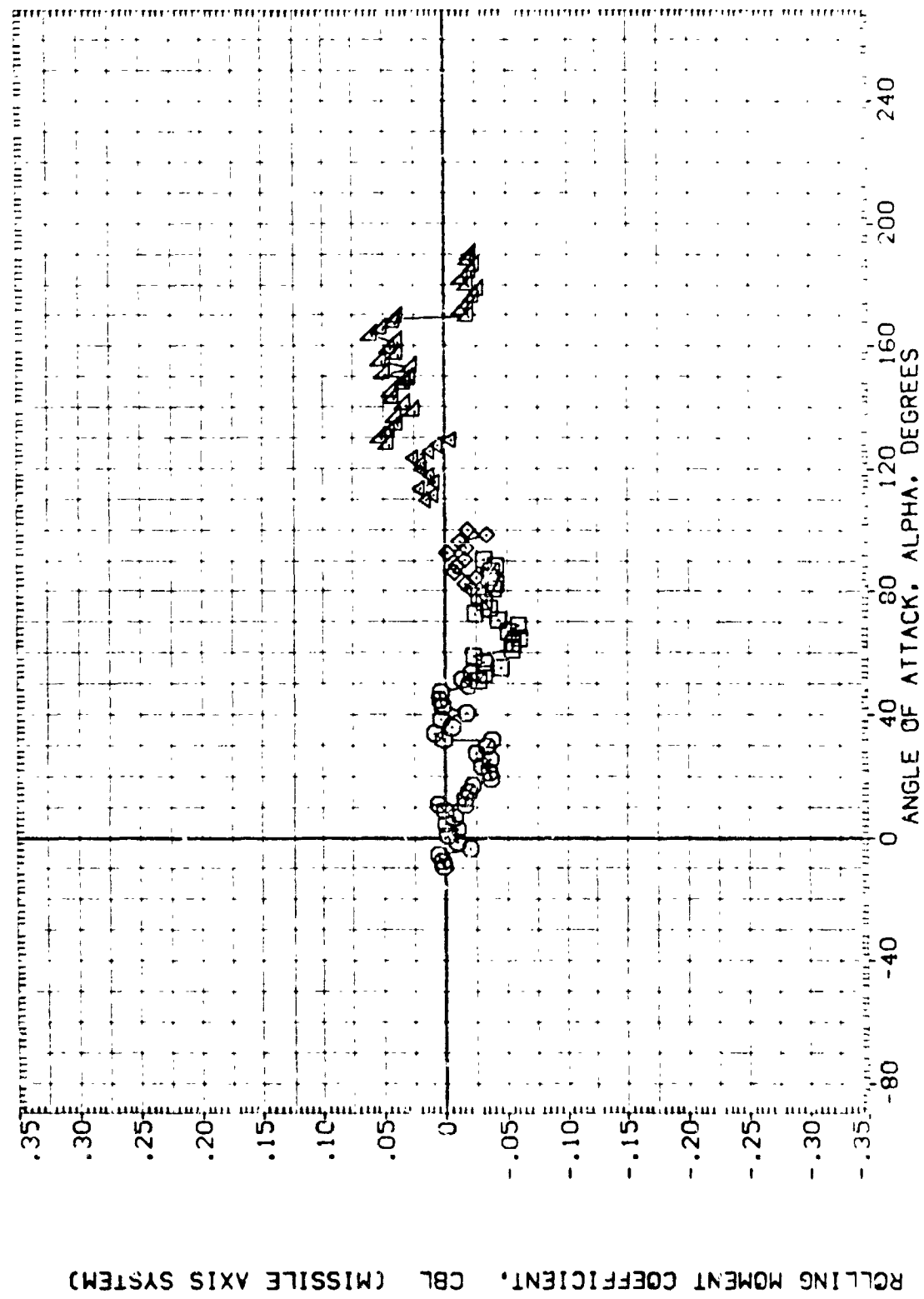


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHAG1)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF 503C SQ IN.
(AIH801)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF 8000 IN.
(AIH008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF 5.7210 IN. XS
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	VMRP .0000 IN. YS
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

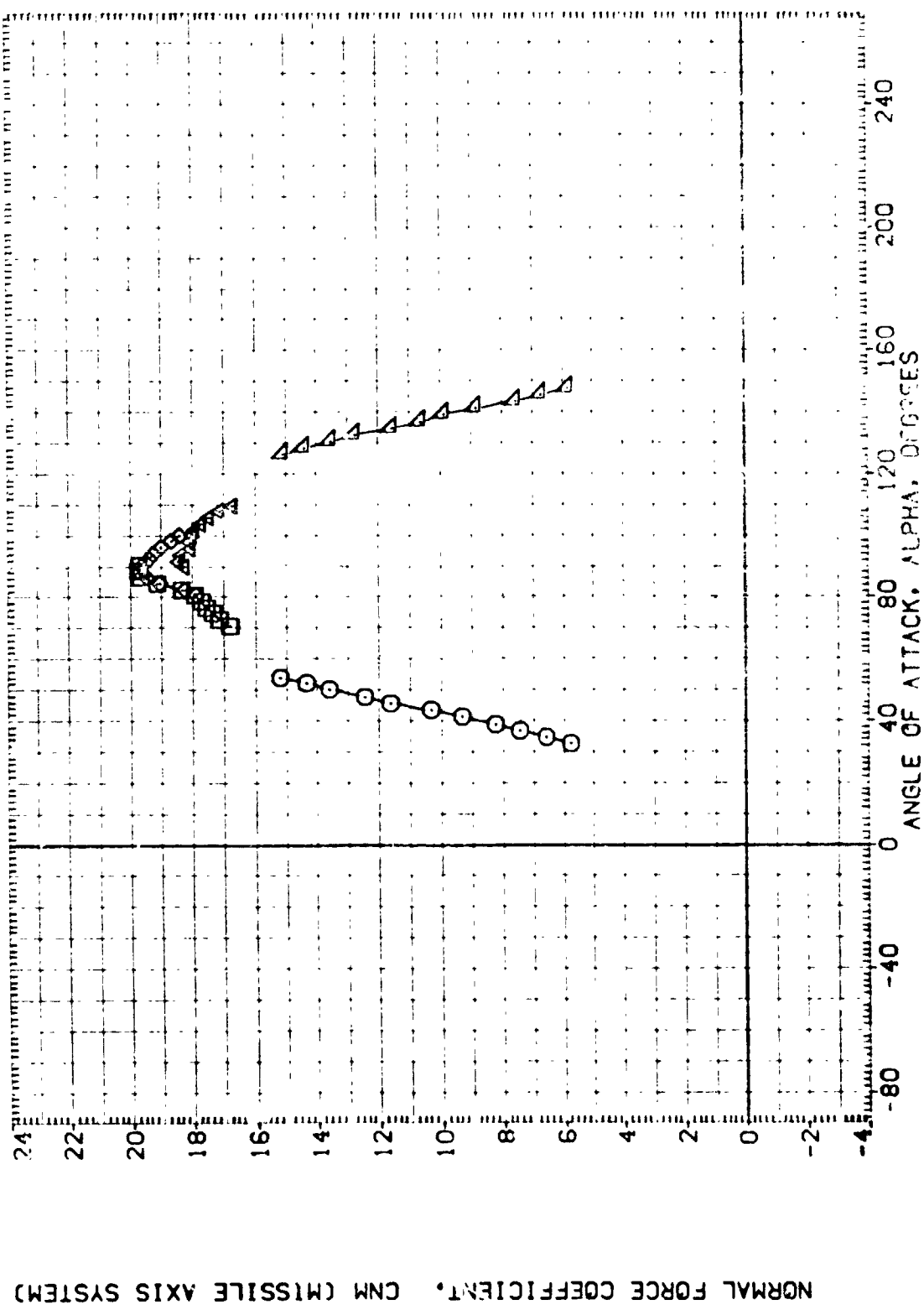


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB CLEAN ATTACH AND AFT RINGS

(F)MACH = .59

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHAD1)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(AIH008)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	BREF .5000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP 5.7210 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN.
			SCALE .0055

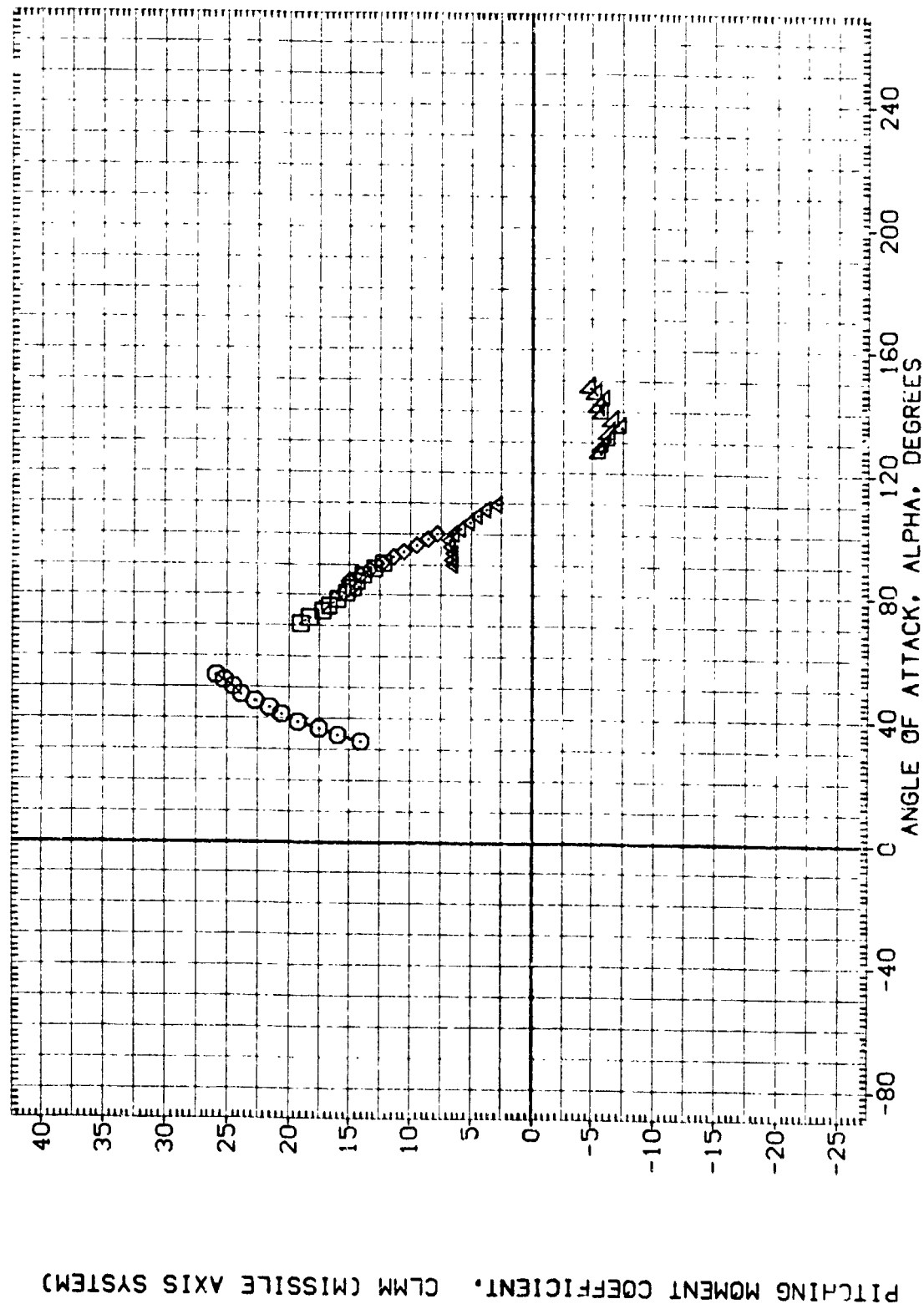


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(F)MACH = .99



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP 5.7210 IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. YS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0055

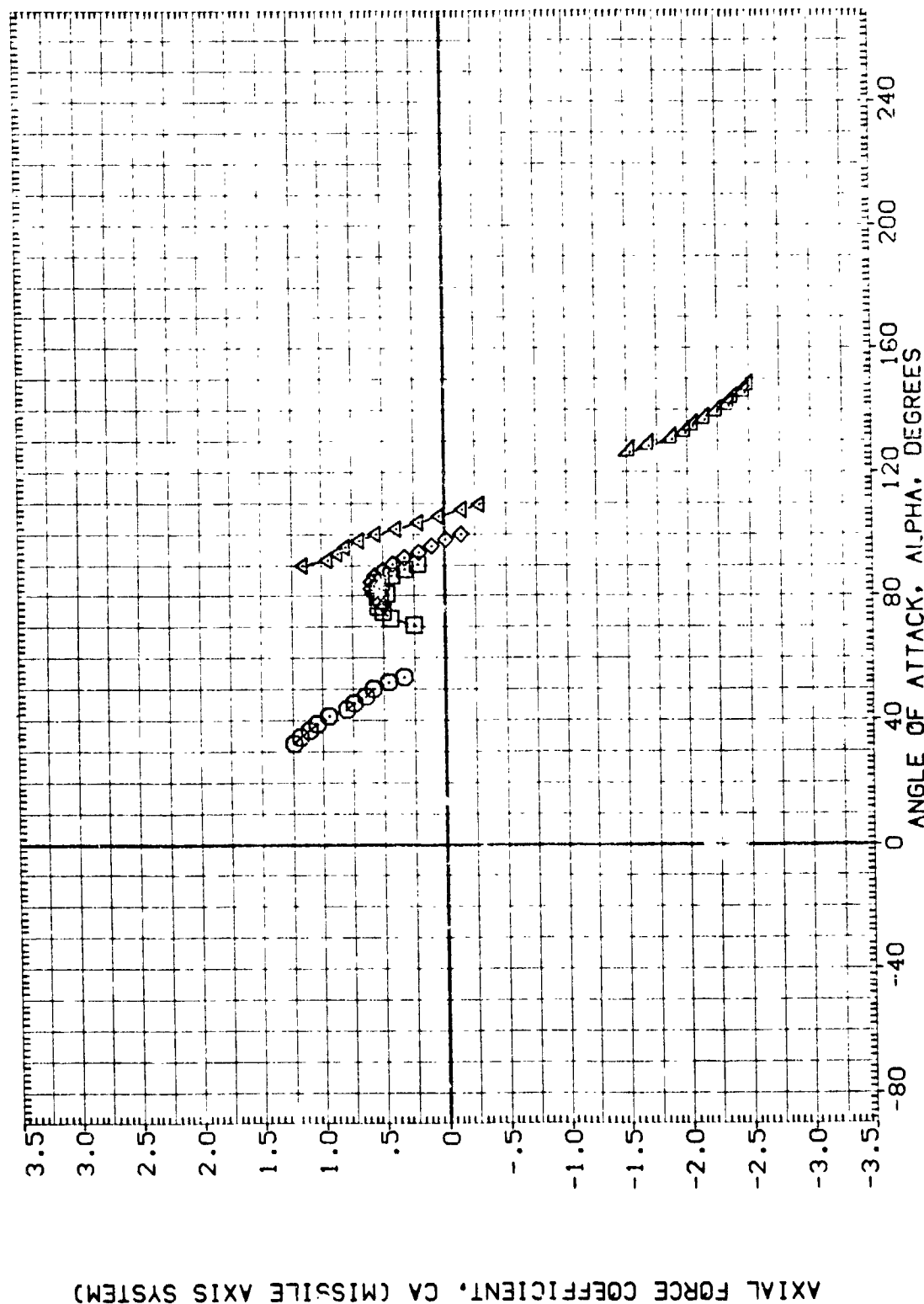


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(F)MACH = .99

REFERENCE INFORMATION

SREF	.5030	SQ. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000

CONFIGURATION DESCRIPTION

MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS

DATA SET SYMBOL

(AIHQ01)	□
(AIHQ01)	×
(AIHQ01)	△

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

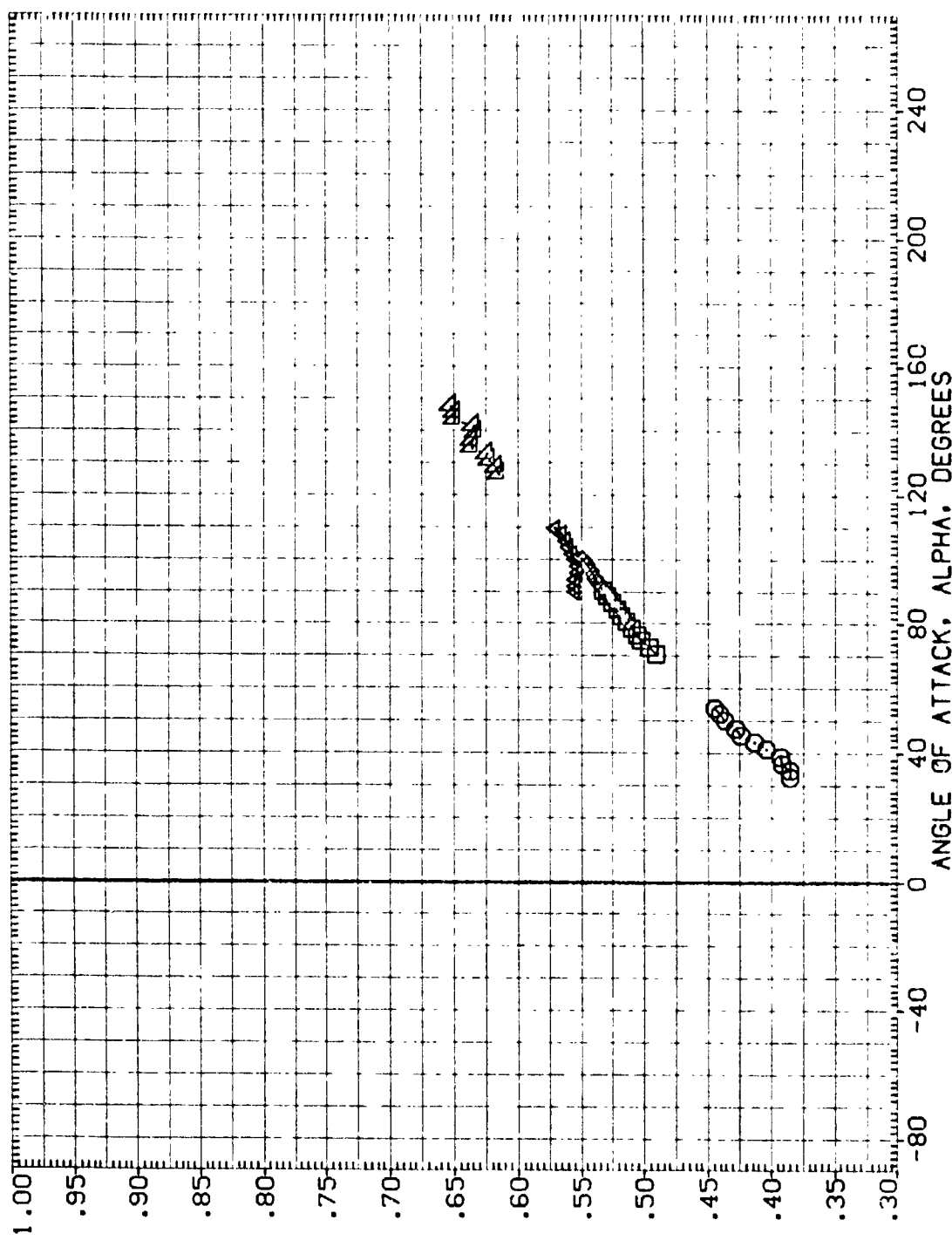


FIGURE 18. STATIC STABILITY CHARACTER. OF SRB W/CLEAN ATTACH AND AFT RINGS

(F)MACH = .99

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	SREF .5030 50. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	LREF .8000 80. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	BREF .8000 80. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	YMRP 5.7210 57.21 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	ZMRP .0000 0. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN /RINGS	.000	SCALE .0055

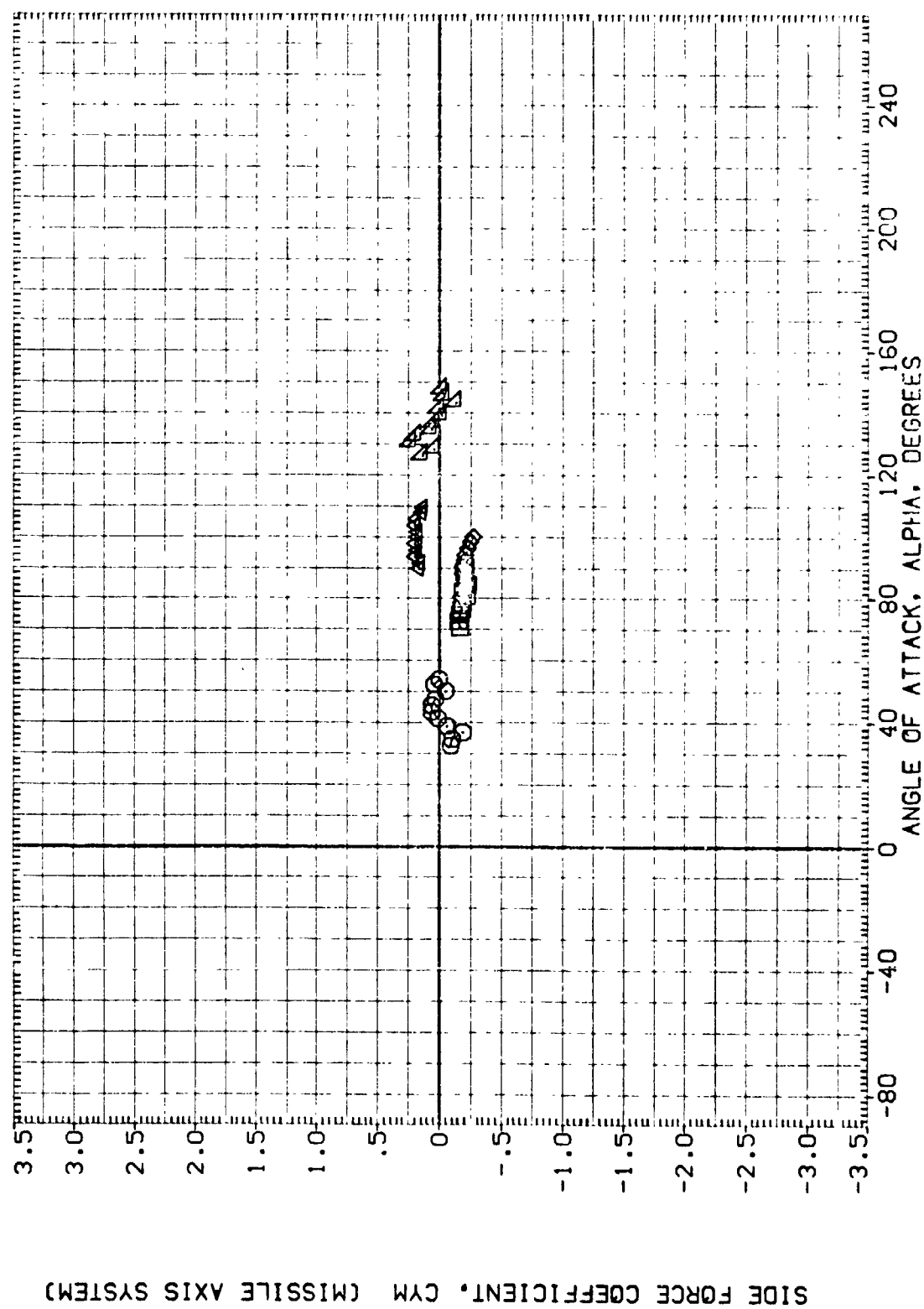


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS  
(F)MACH = .99

YAWING MOMENT COEFFICIENT, CYNM (MISSILE AXIS SYSTEM)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ.IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 N.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 N.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0055

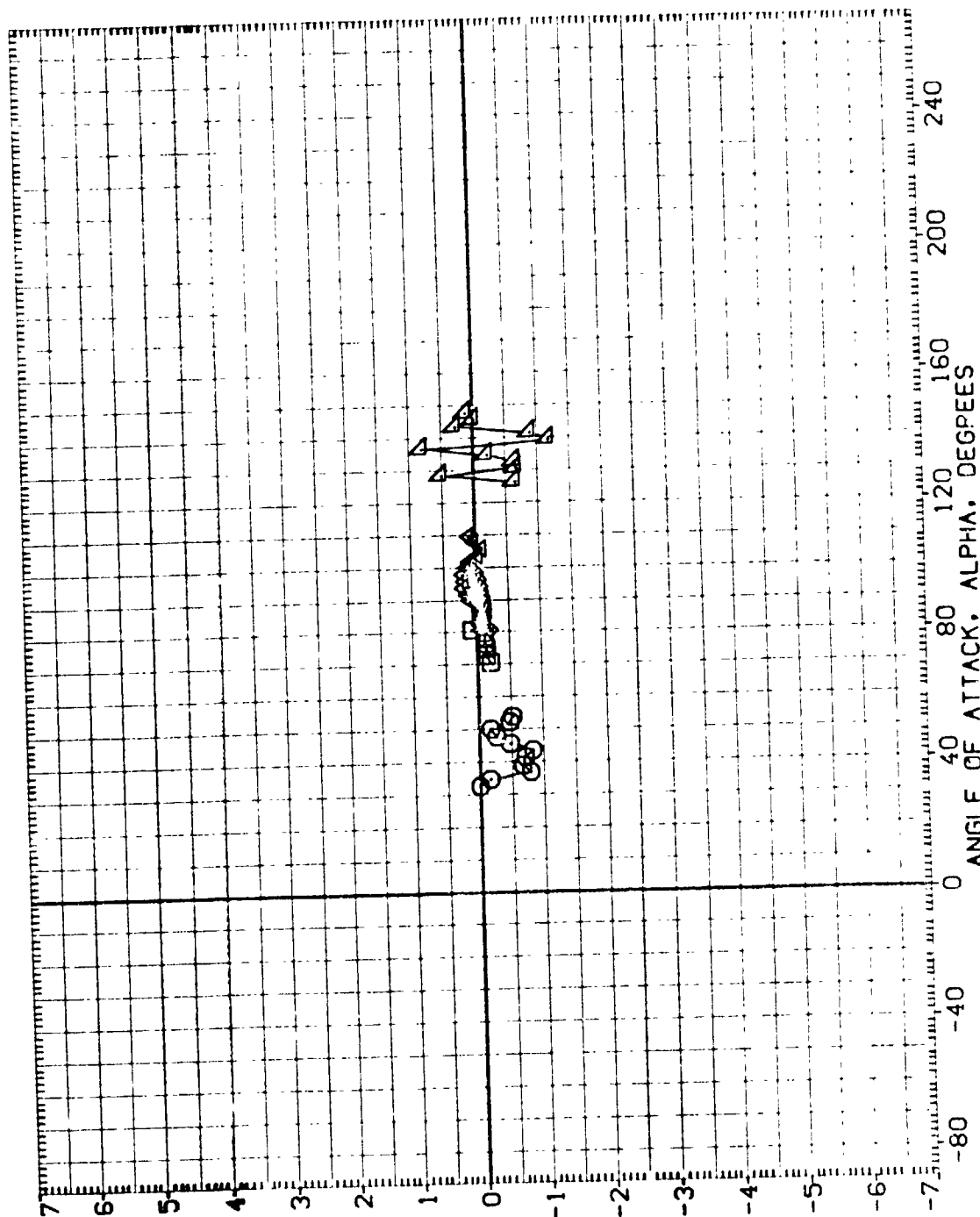


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(F)MACH = .99

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIH008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP 5.7210 IN. XS
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. YS
			SCALE .0055

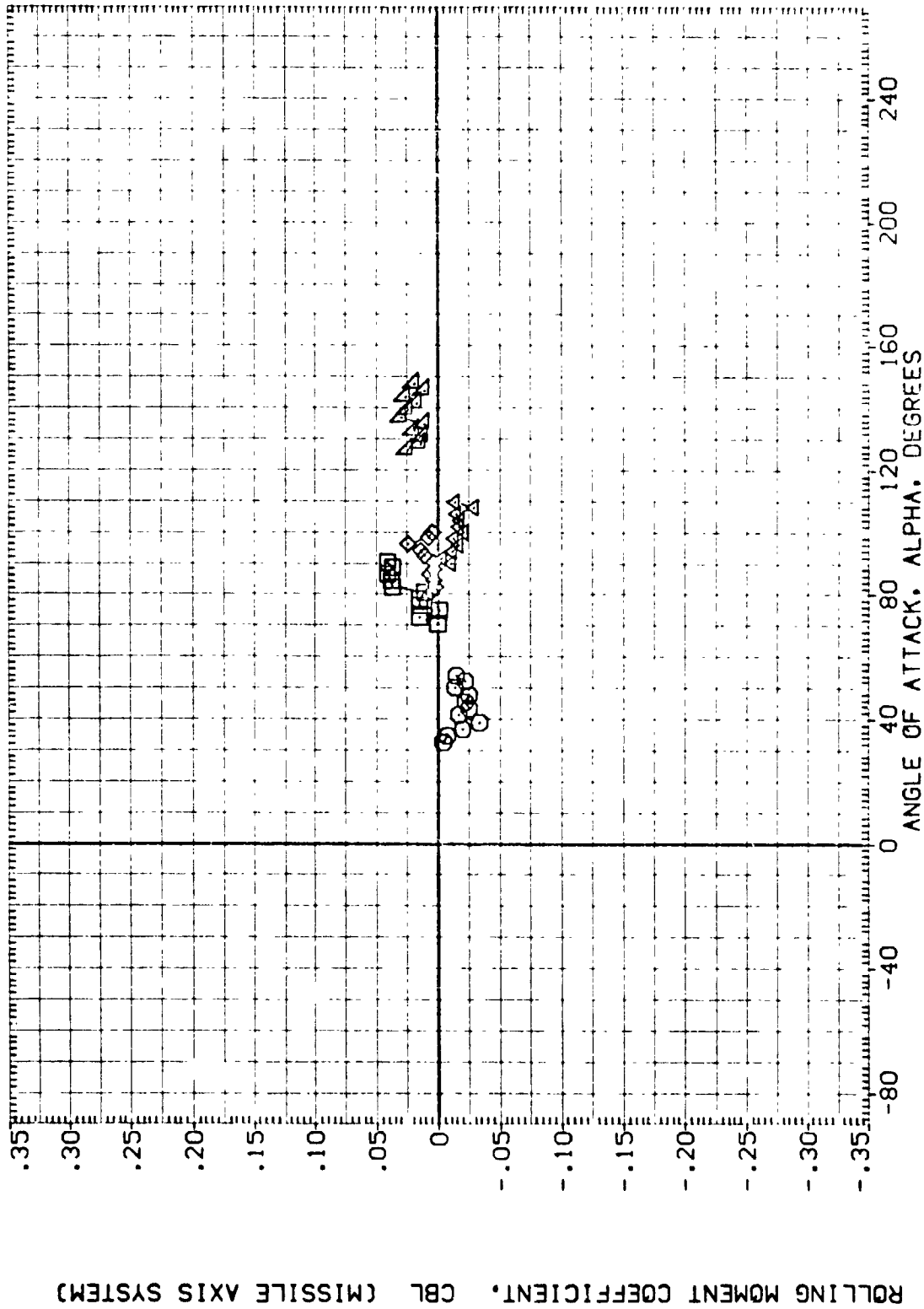


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(F)MACH = .99

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

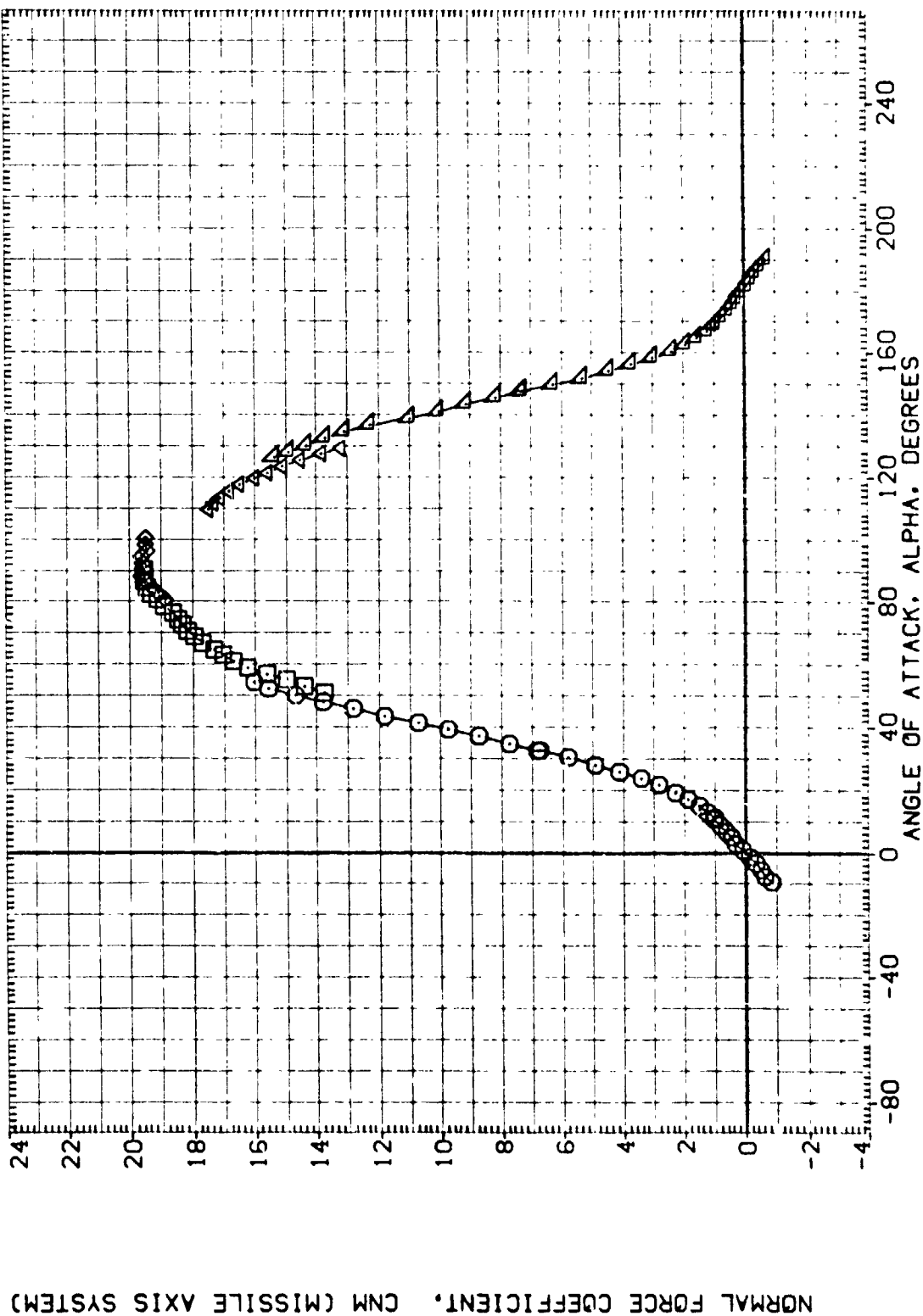


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMFP 5.7210 IN. XS
(A1H001)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMFP .0000 IN. YS
(A1H001)	HSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMFP .0000 IN. ZS
			SCALE .0055

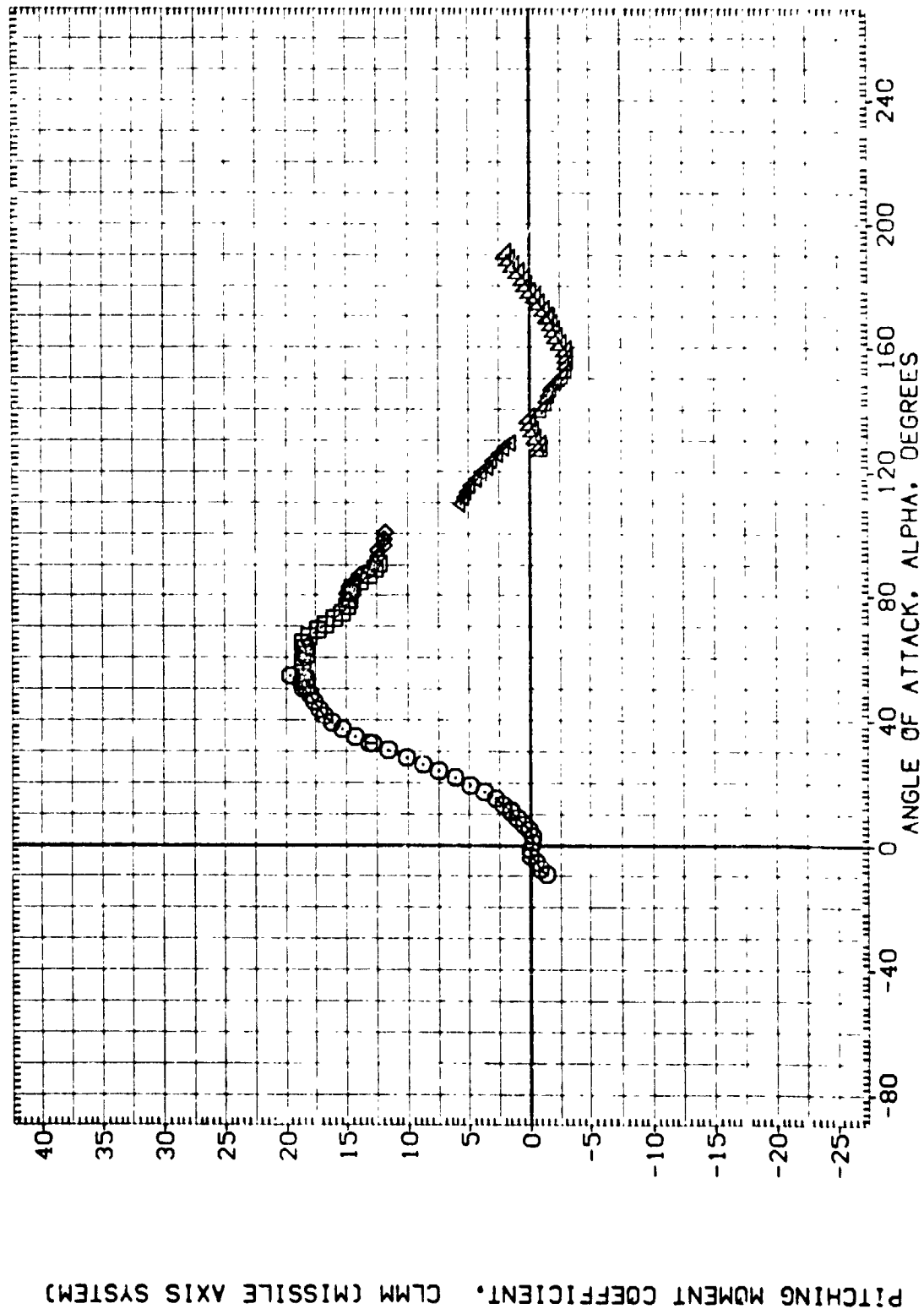


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H601)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BRFC .9000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

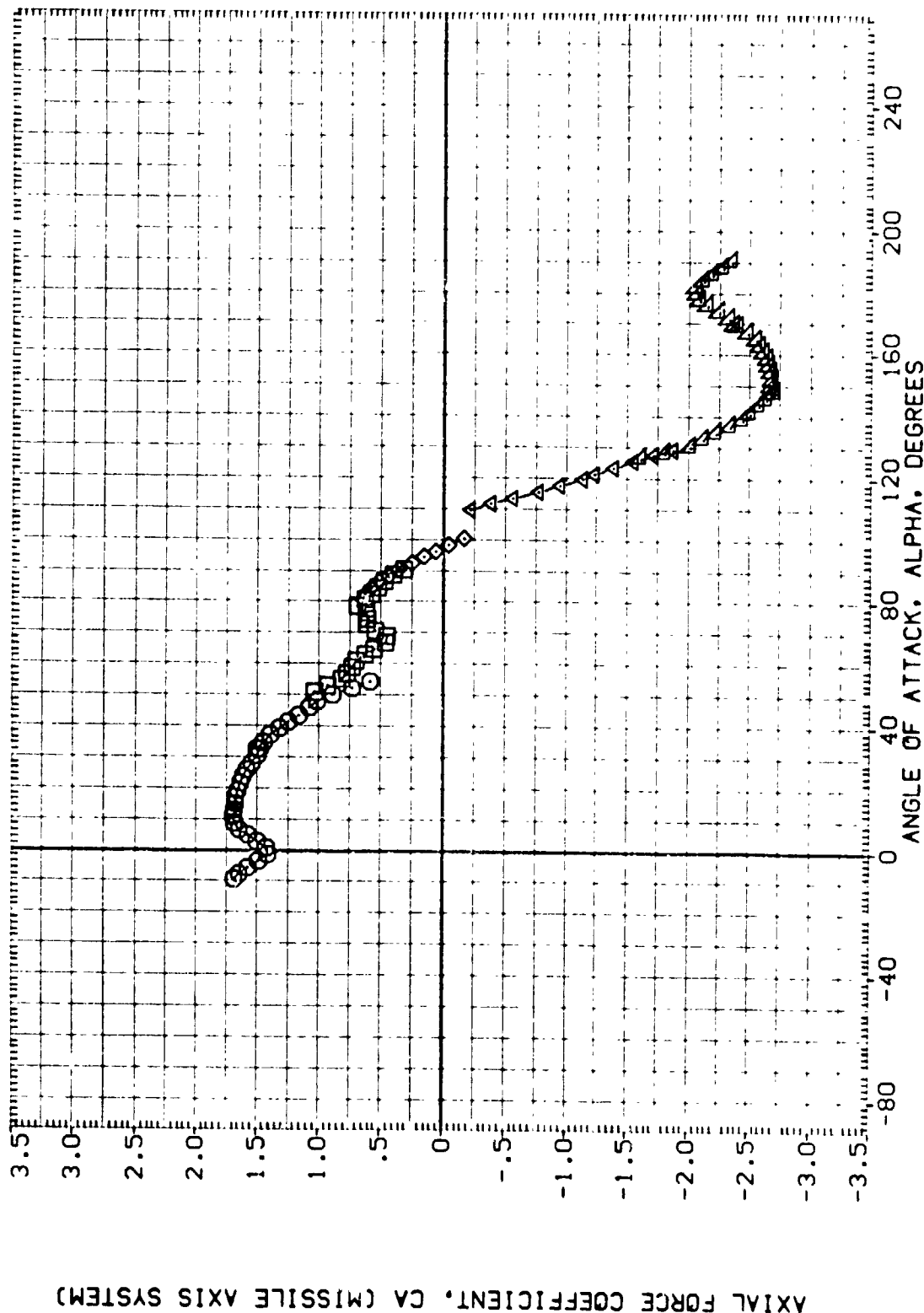


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20



CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF 5030 SQ. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF 8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF 8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

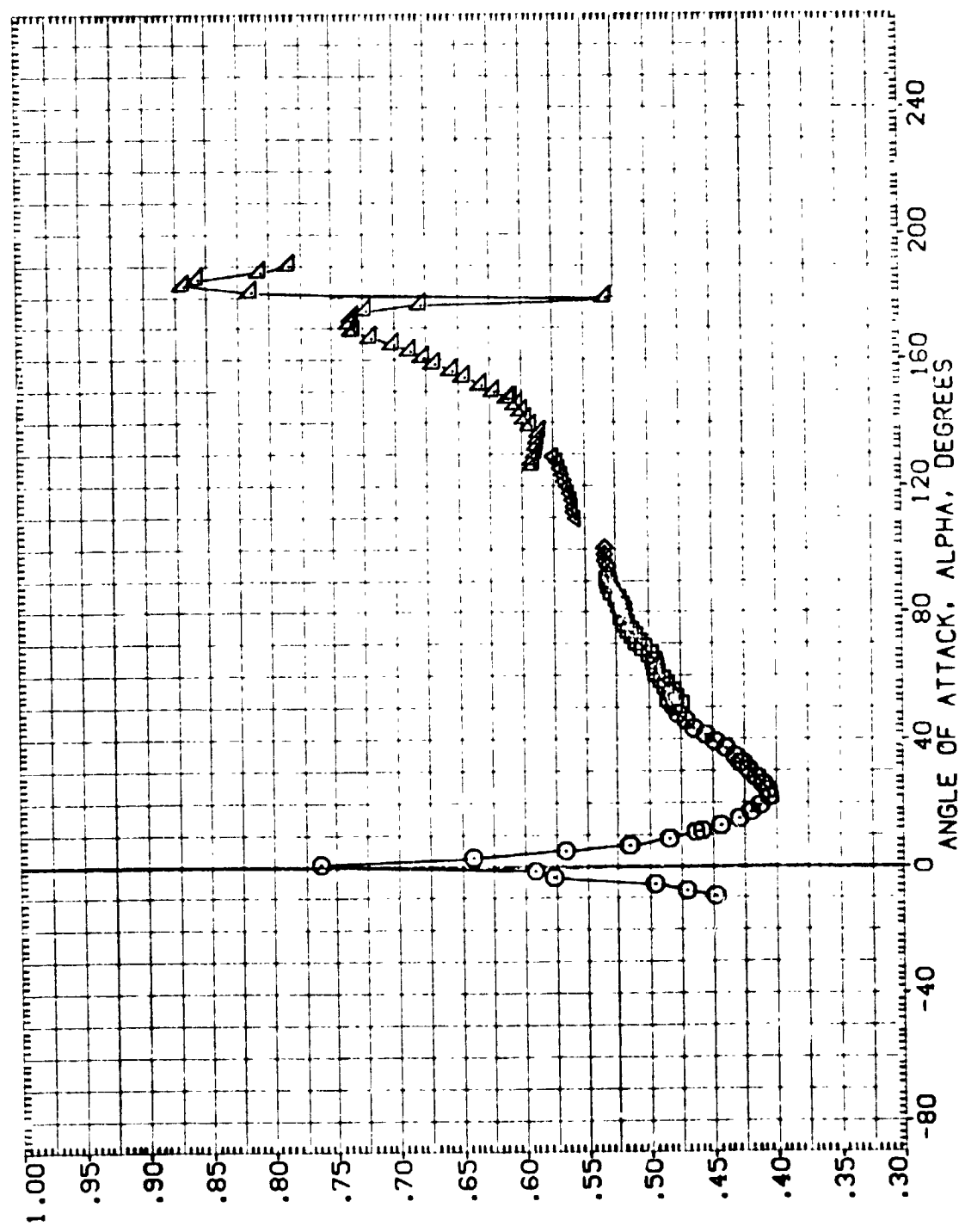


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF 5030 SQ. IN.
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF 8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF 8000 IN.
(A1H004)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H006)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

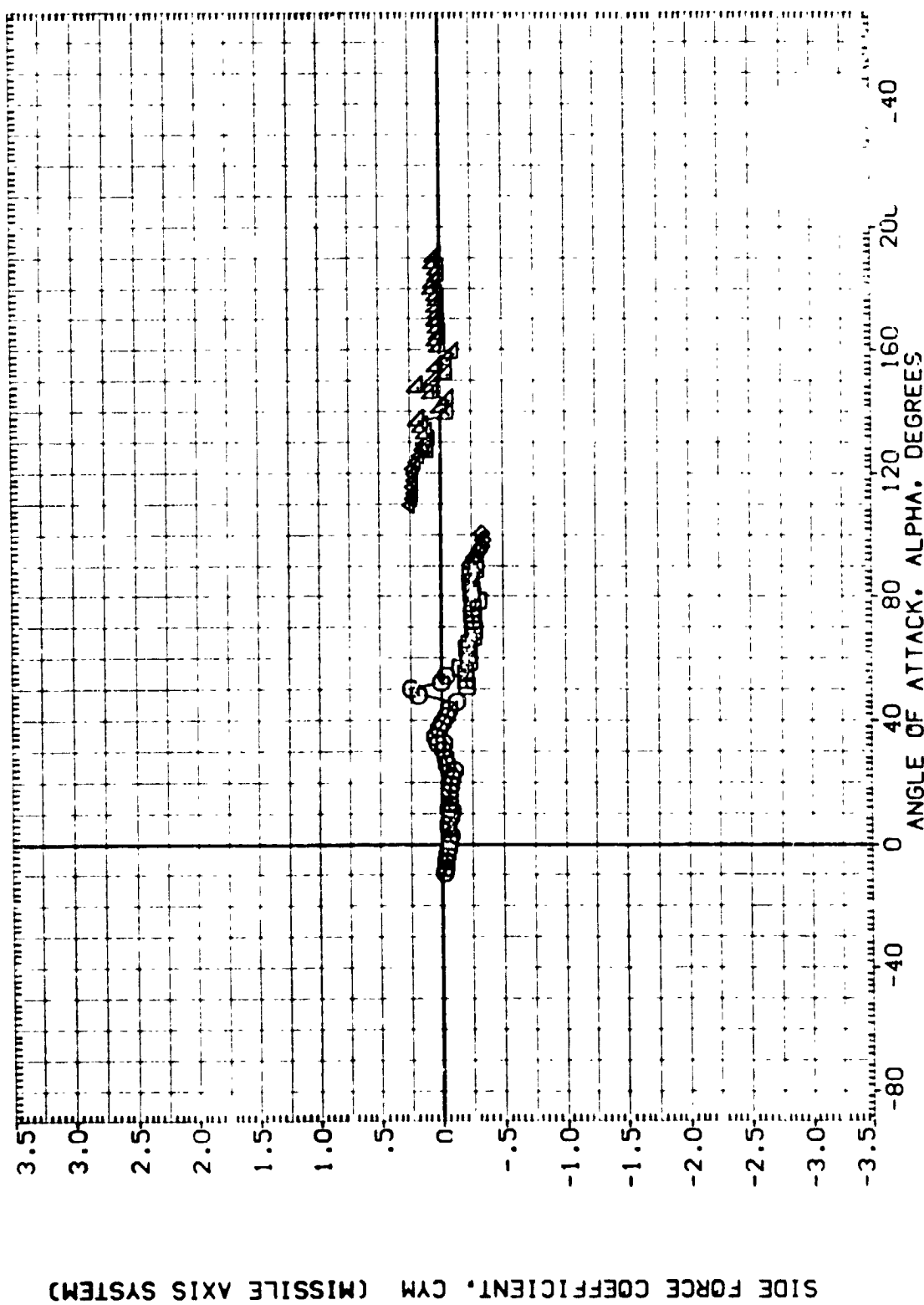


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 CO. IN.
(A1H801)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

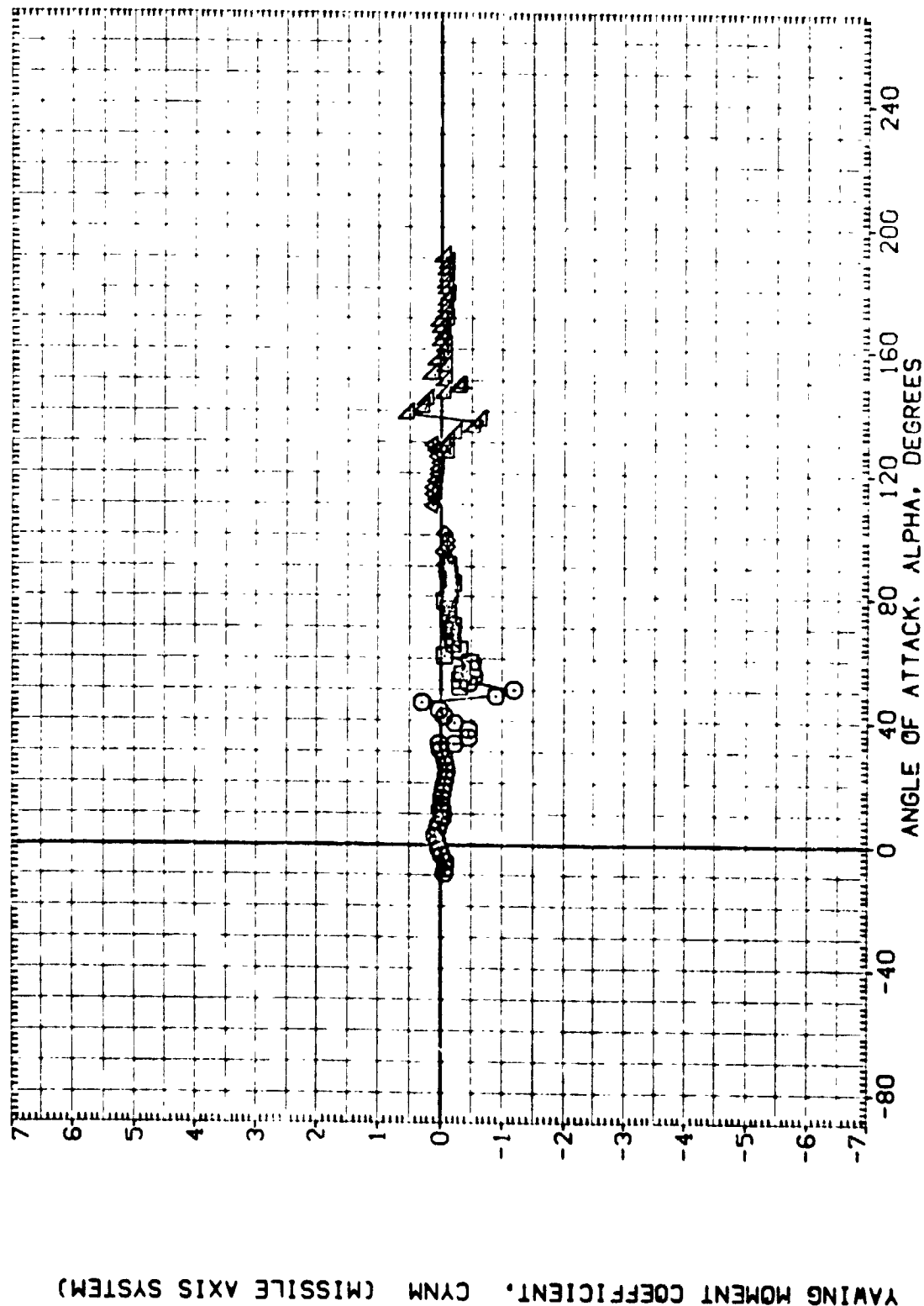


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 IN.
(A1H402)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H403)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H404)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN.
(A1H405)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN.
(A1H406)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN.
(A1H407)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0055

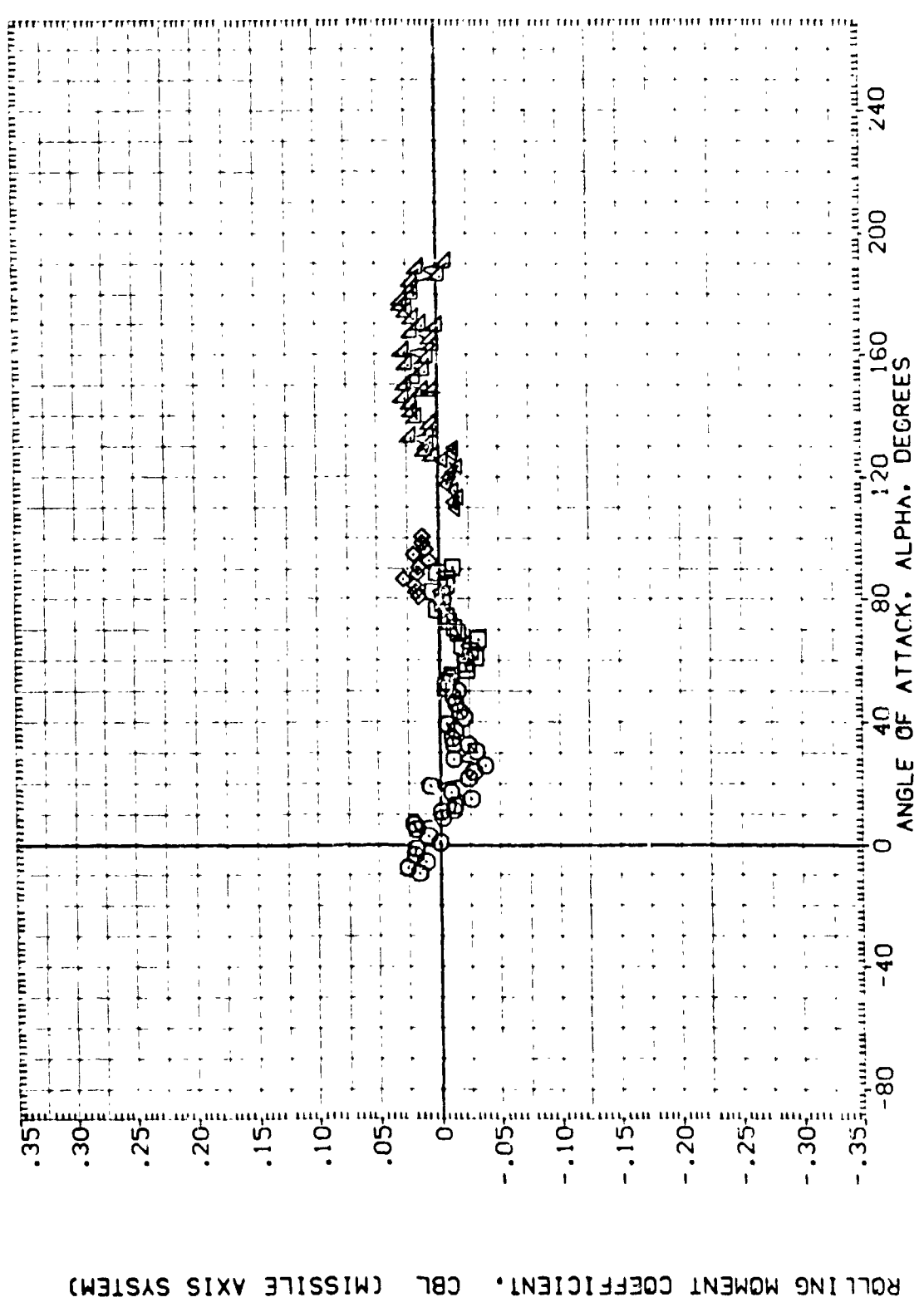


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(G)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	S <sub>REF</sub> 50.30 IN.
(AIHQ02)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	L <sub>REF</sub> 8000 IN.
(AIHQ03)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	B <sub>REF</sub> 8000 IN.
(AIHQ04)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN.
(AIHQ05)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN.
(AIHQ06)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN.
(AIHQ07)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0055

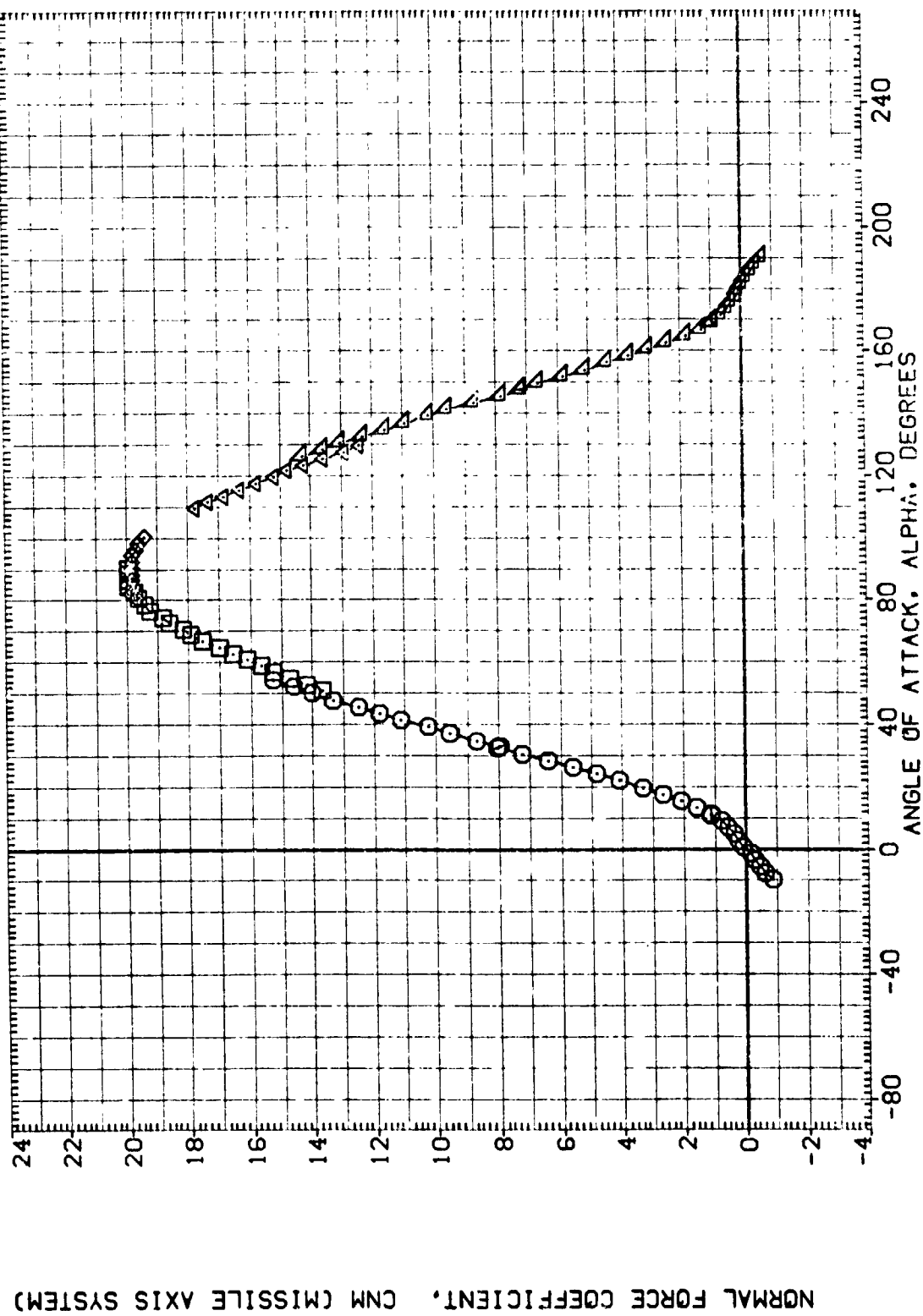


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP 5.7210 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN.
			SCALE .0055

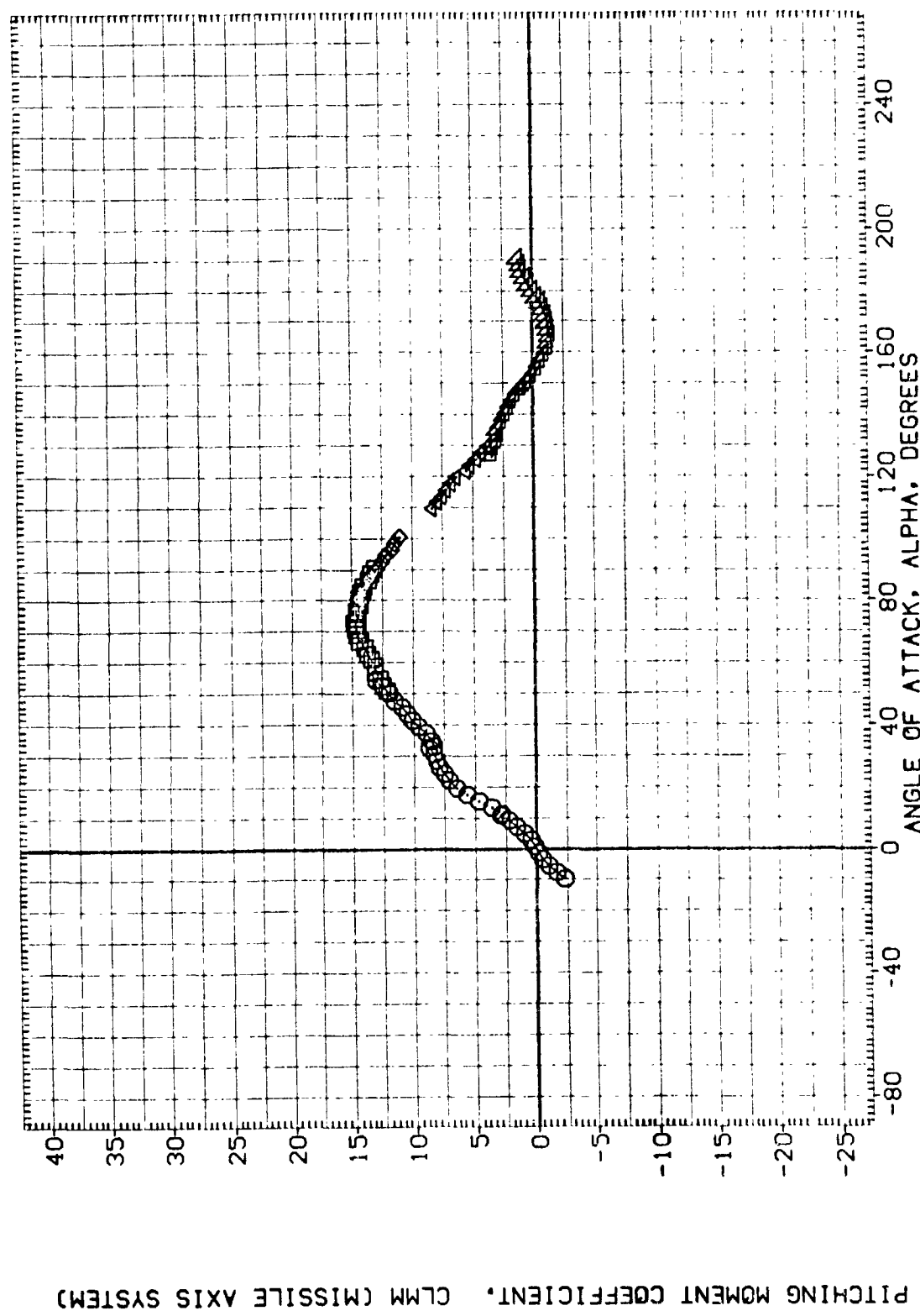


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(H)MACH = 1.96

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIHQ08)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .9000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	5.7210 IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

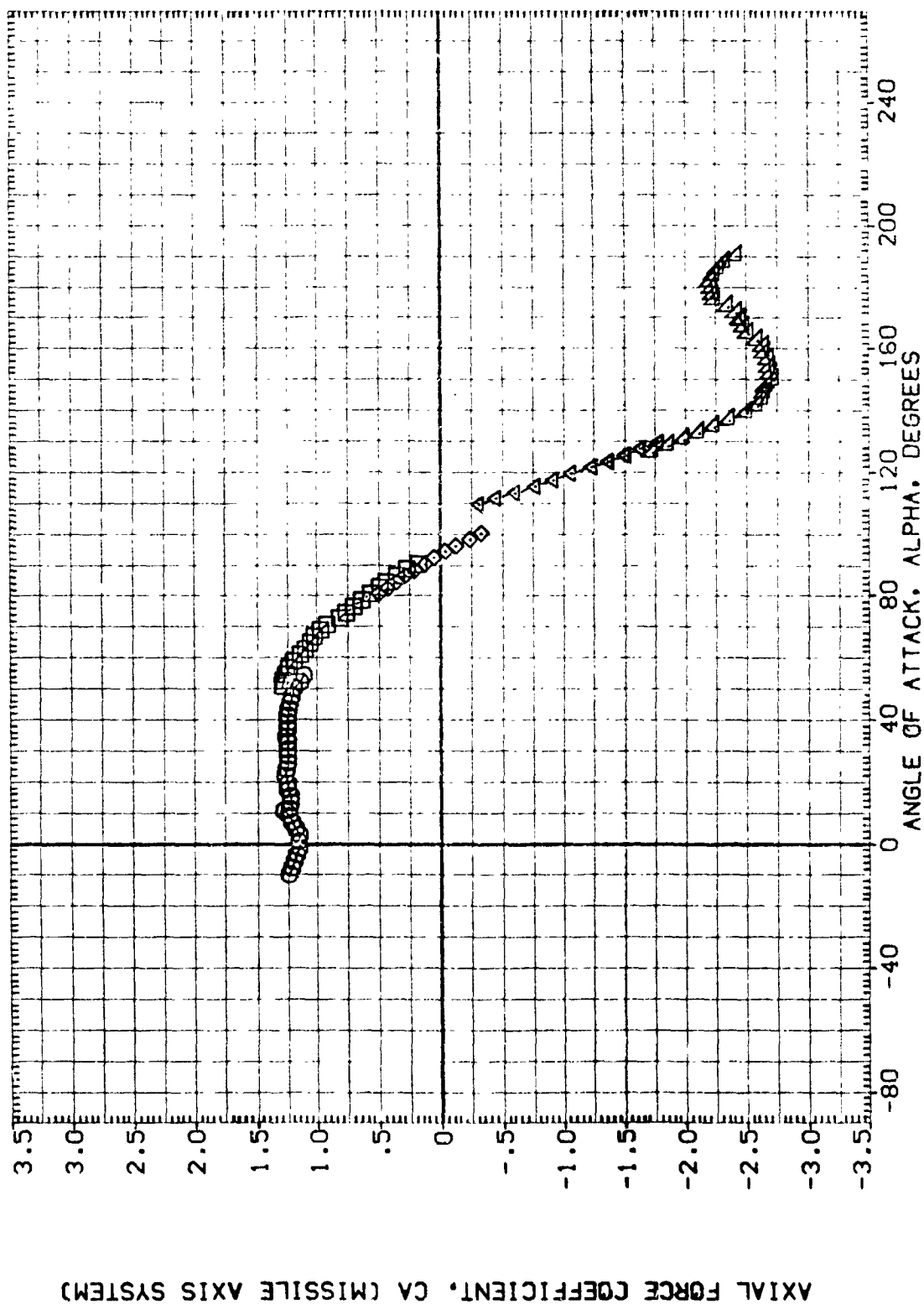


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(H)MACH = 1.96

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1HA01)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 IN.
(A1H301)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.000	BREF .8000 IN.
(A1HC01)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.000	5.7210 IN. XS
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

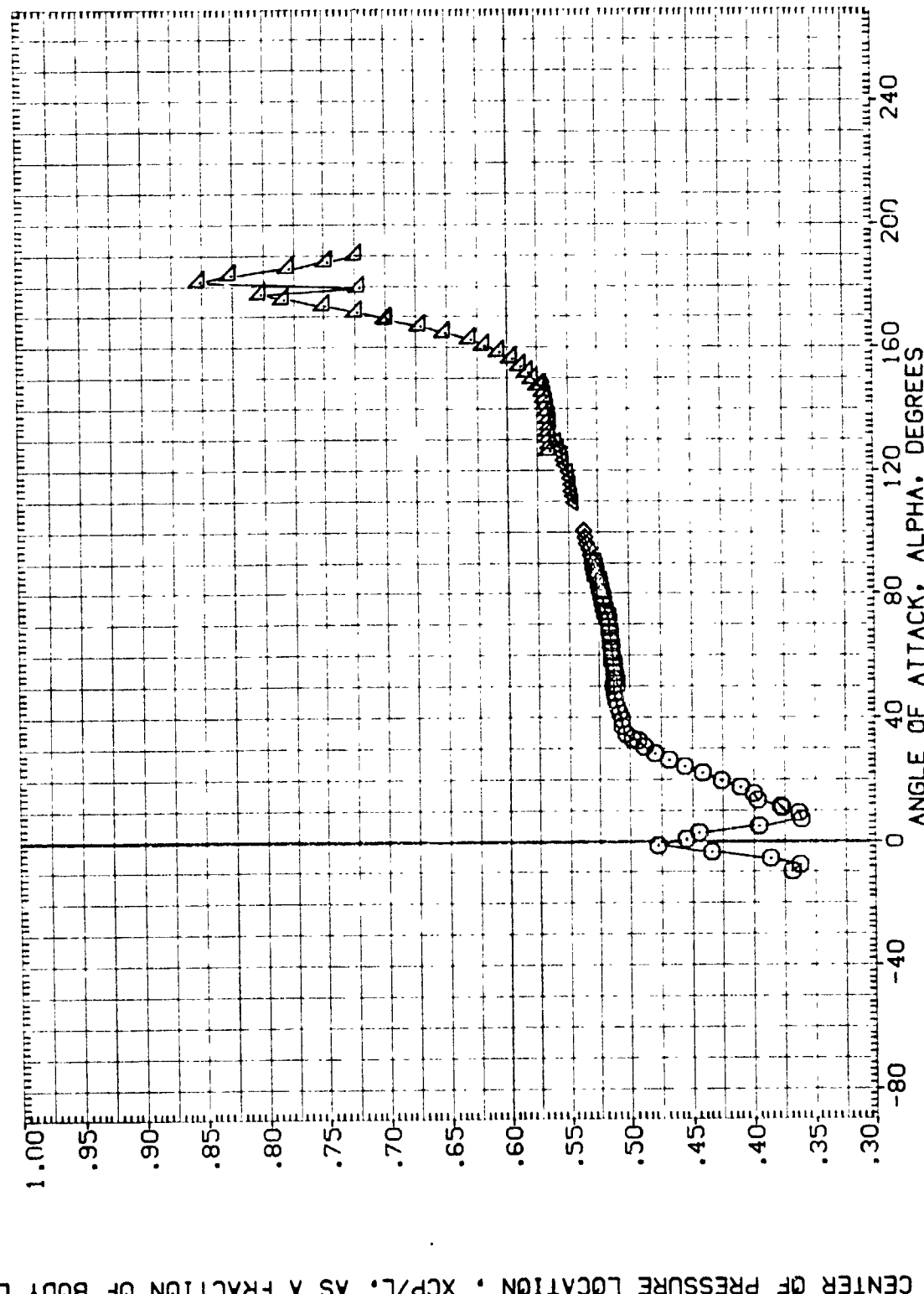


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS  
(M)MACH = 1.96      PAGE 53



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

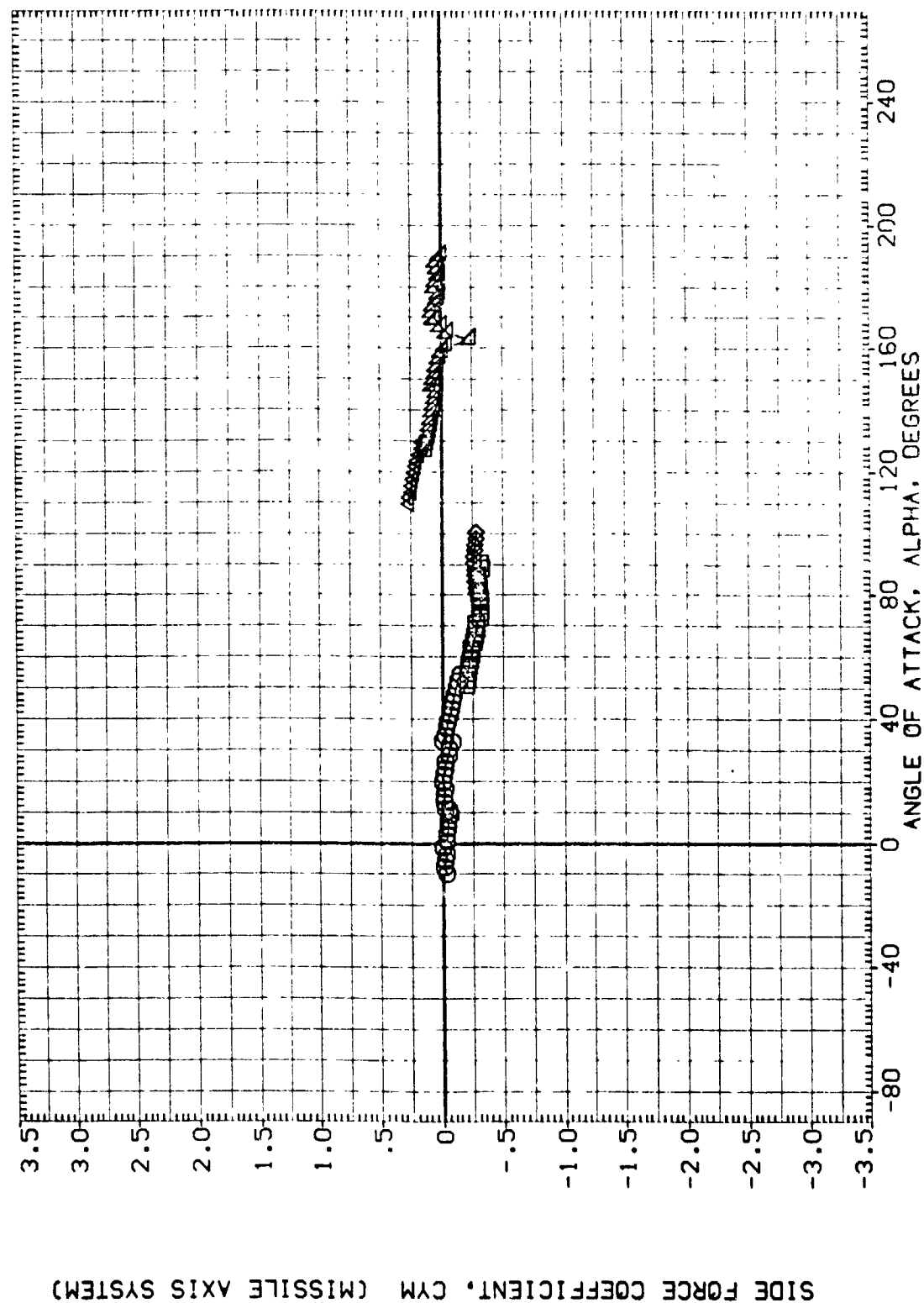


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/ CLEAN ATTACH AND AFT RINGS

(H)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

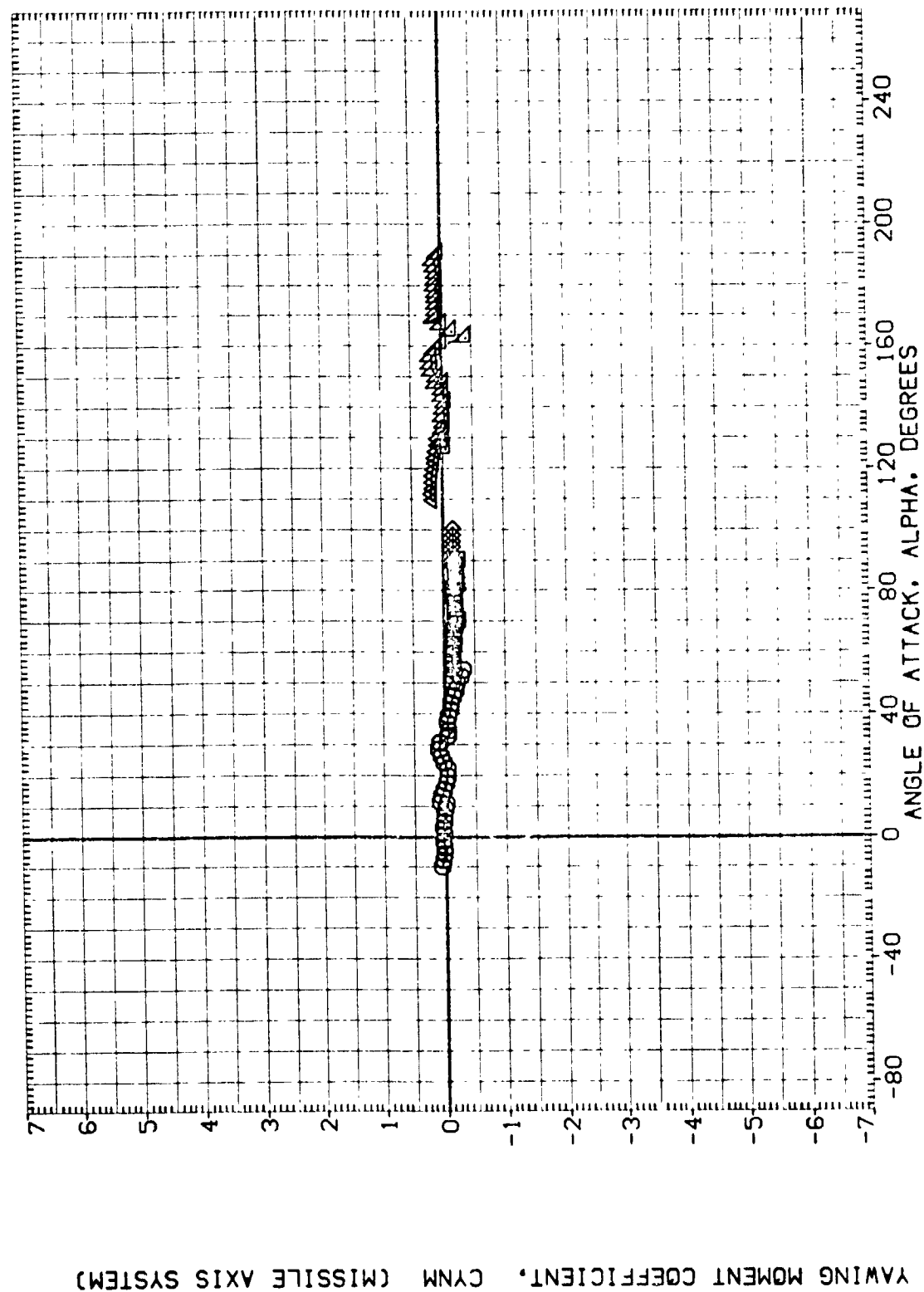


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(H)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .9000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN.
			SCALE .0055

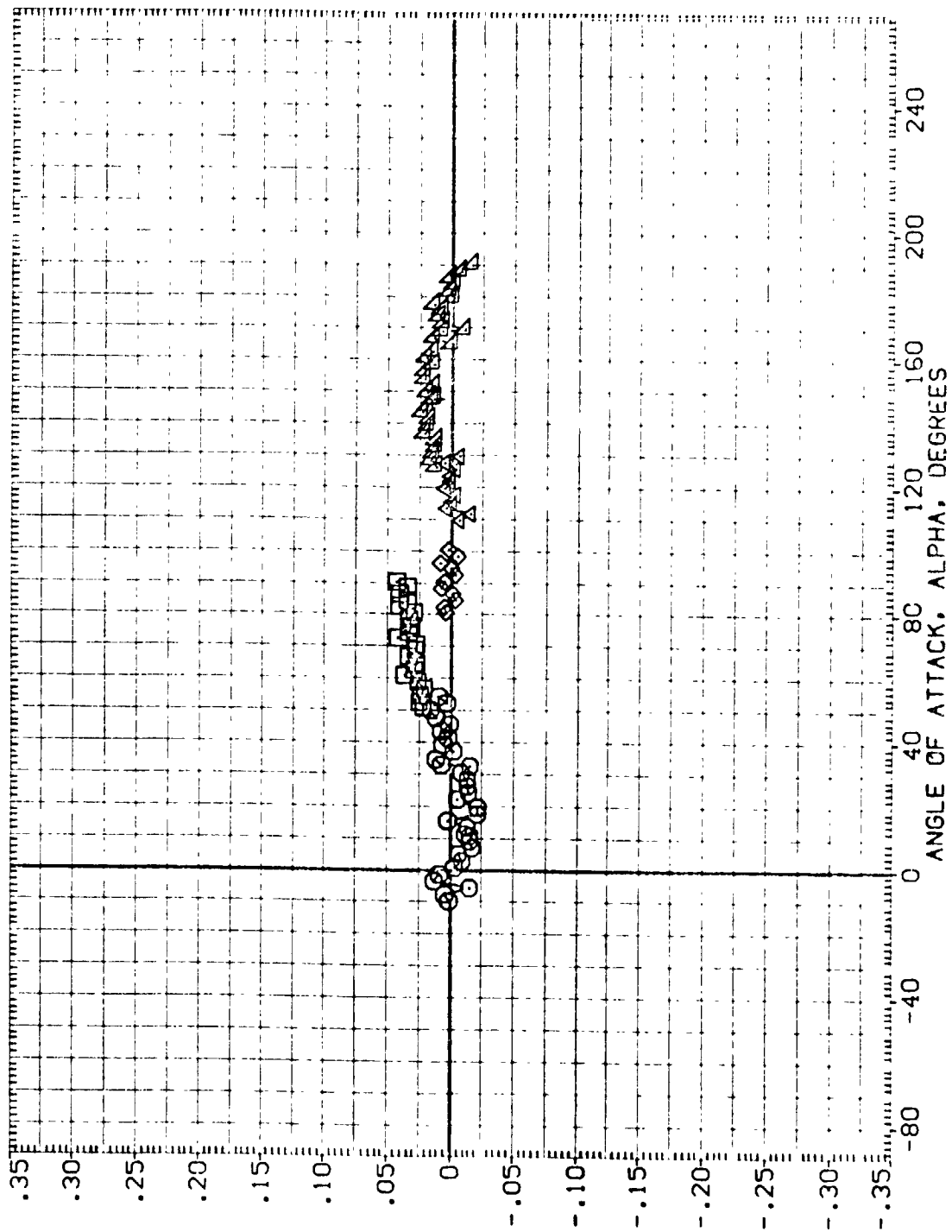


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(H)MACH = 1.96

DATA SET SYMBOL	CONF IGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

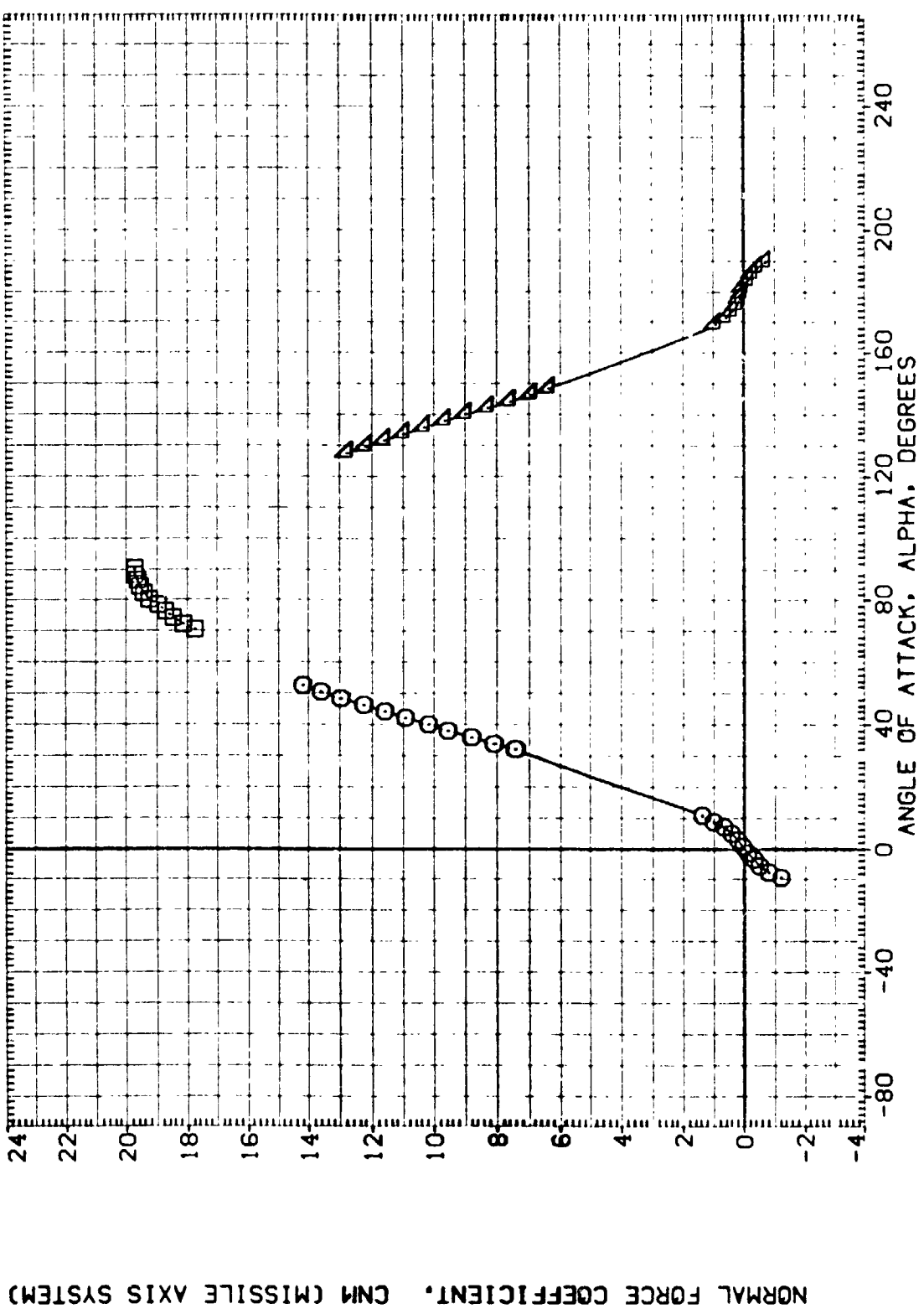


FIGURE 18. STATIC STABILITY CHARACTER. OF SRB W/CLEAN ATTACH AND AFT RINGS  
 (MACH = 2.74) PAGE 57

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF 5030 SQ. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF 8000 IN.
(AIHQ08)	DATA NOT AVAILABLE	.000	BREF 8000 IN.
(AIHQ01)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

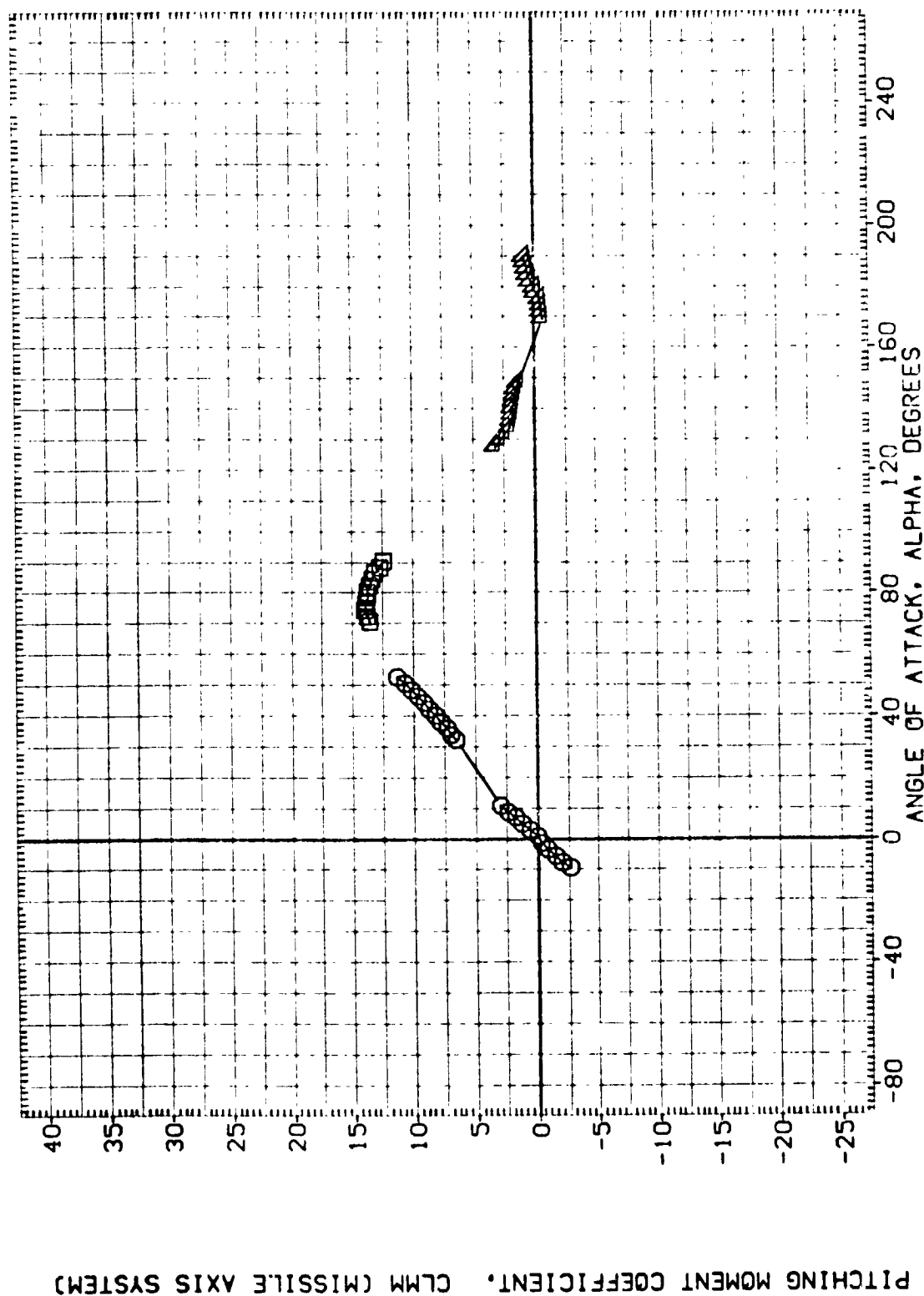


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(1)MACH = 2.74



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SO. IN.
(A)H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A)H008)	DATA NOT AVAILABLE	.000	BREF 5.7210 IN. XS
(A)H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A)H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

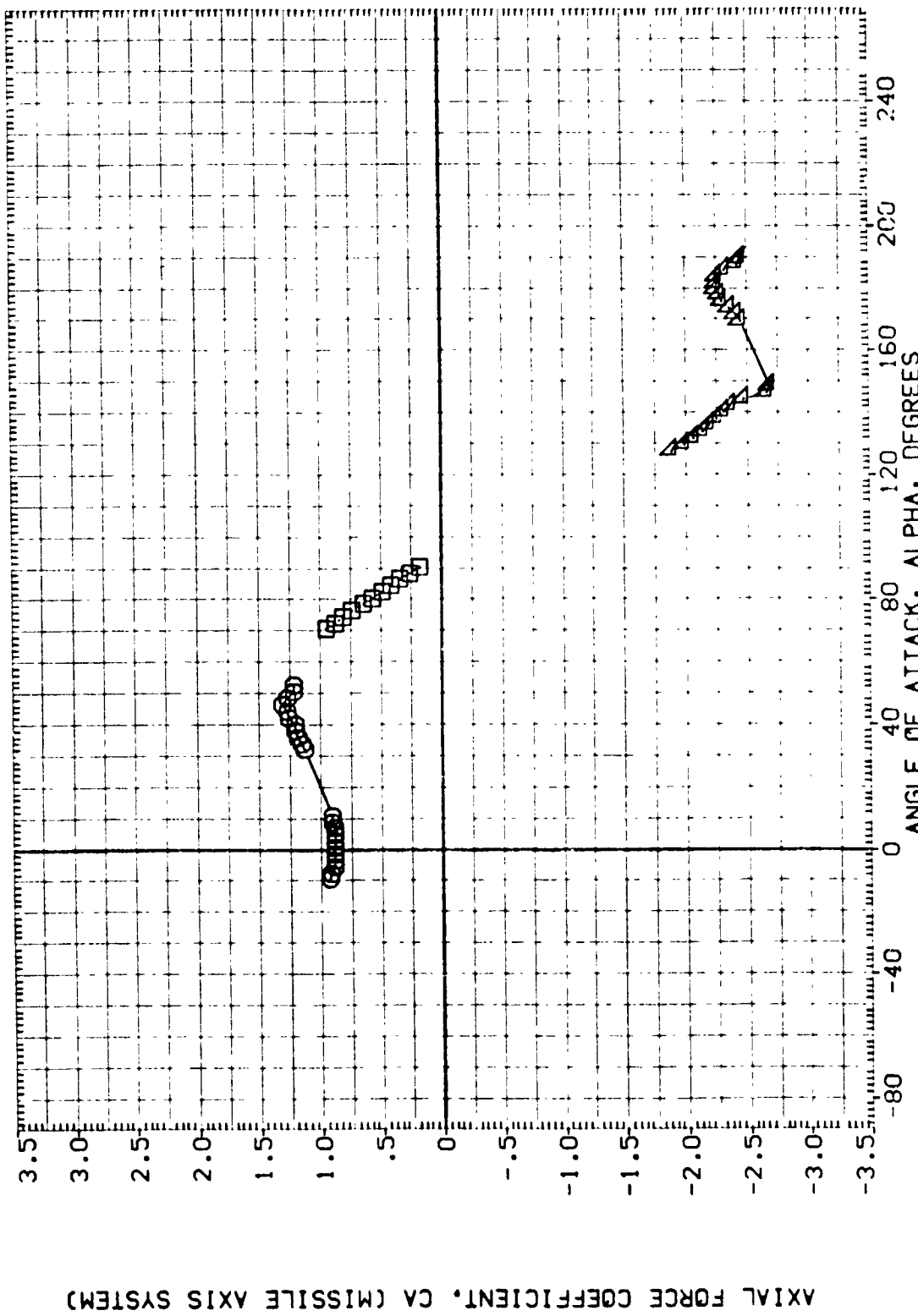


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(AIH008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(AIH001)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN.
(AIH001)			ZMRP .0000 IN.
			SCALE .0055

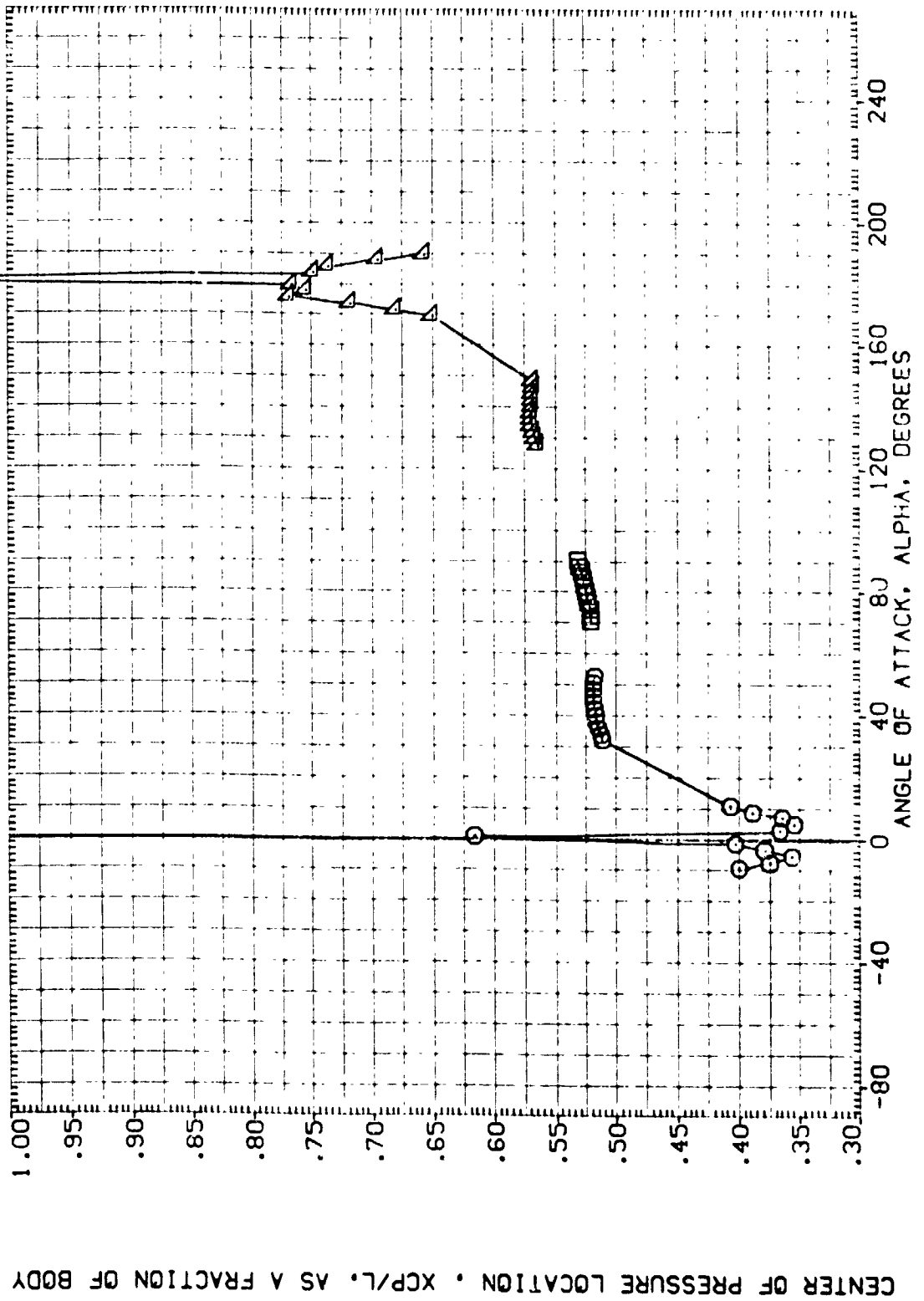


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(1) MACH = 2.74

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DATA SET SYMBOL  
 (A1H401)  
 (A1H601)  
 (A1H801)  
 (A1H001)  
 (A1H001)

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB CLEAN W/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN W/RINGS  
 DATA NOT AVAILABLE  
 DATA NOT AVAILABLE  
 MSFC TVT604 (SABF) SRB CLEAN W/RINGS

PHI  
 .000  
 .000  
 .000  
 .000

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

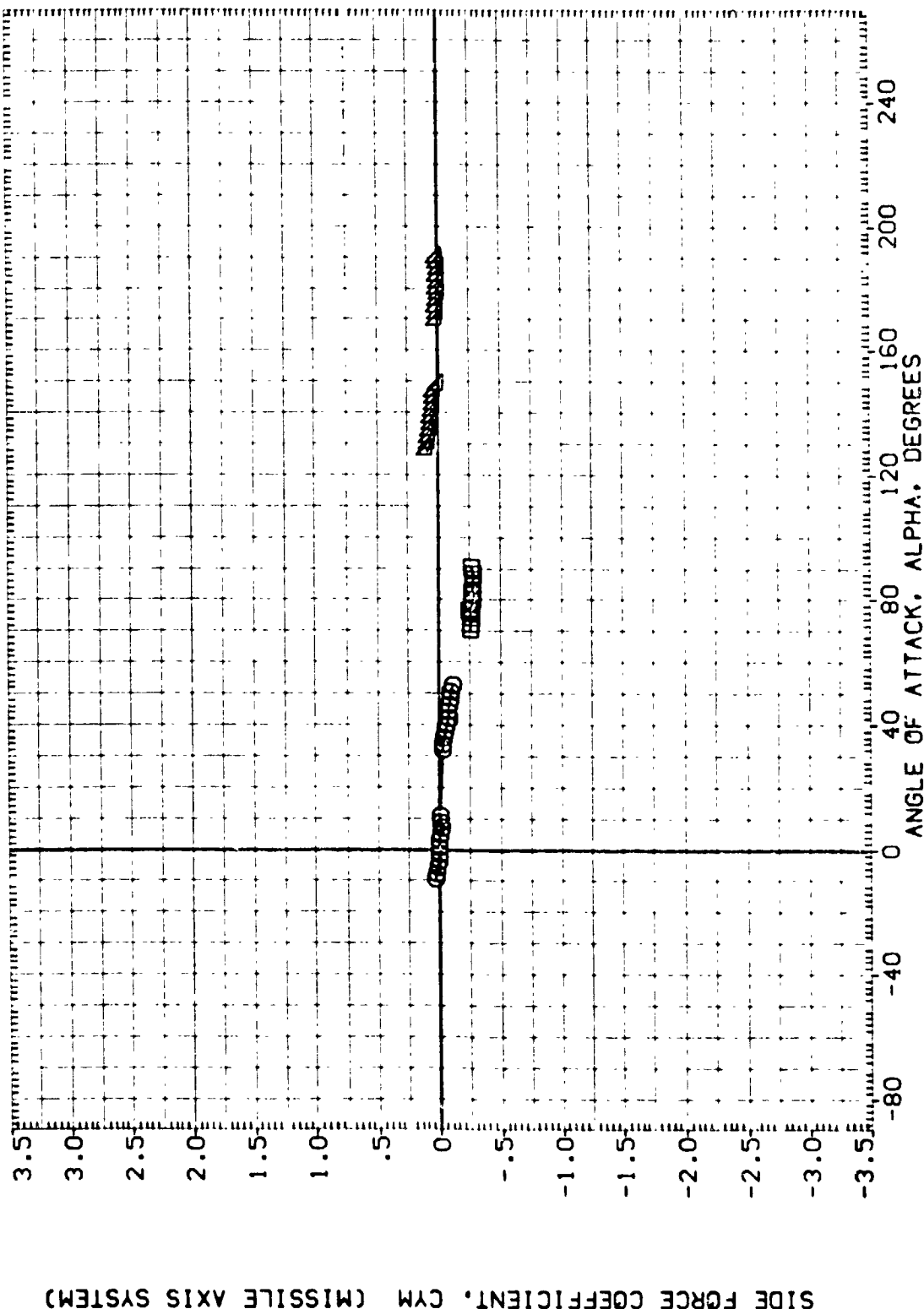


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(1) MACH = 2.74



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

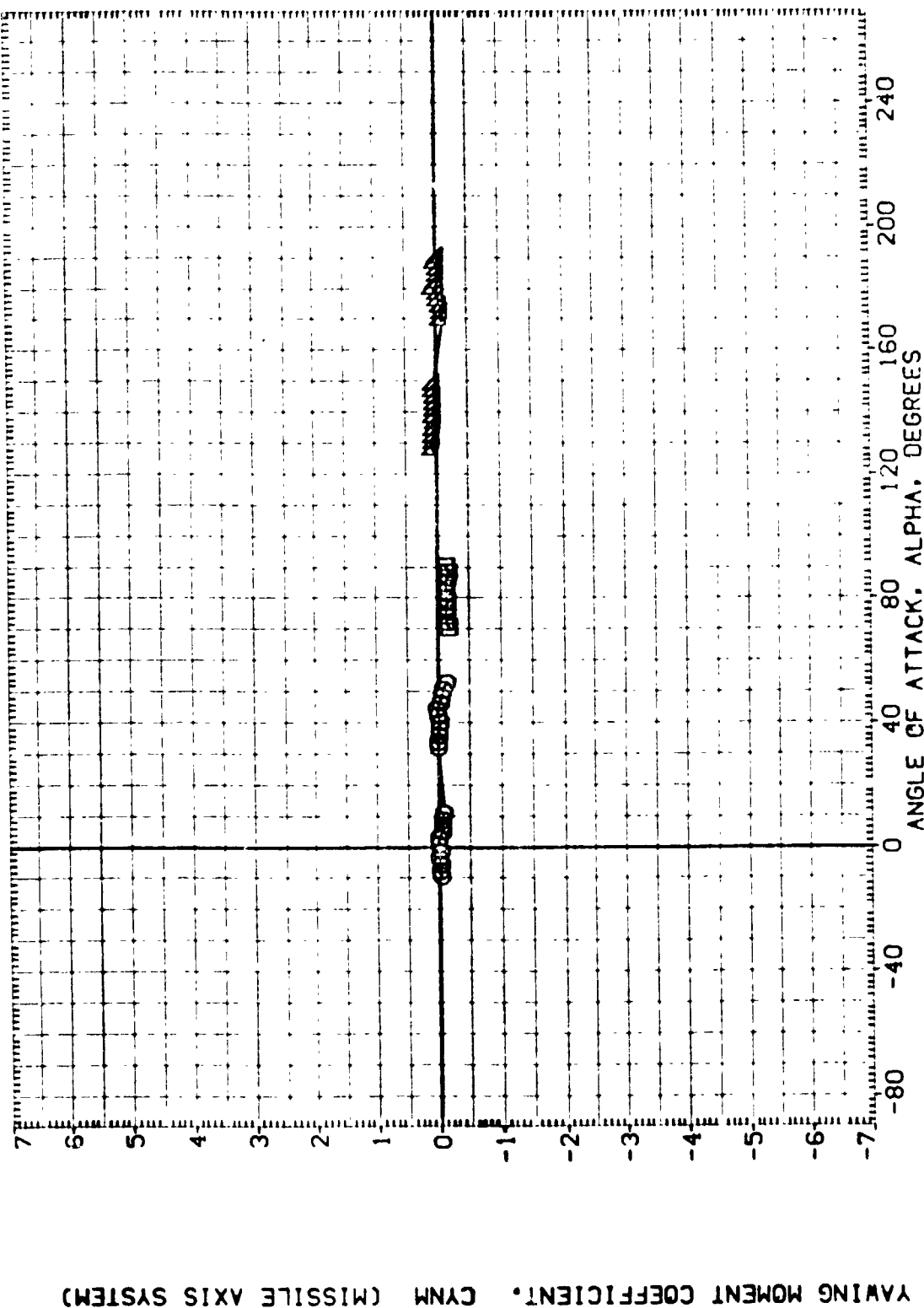


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(1) MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1M001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1M002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1M003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1M004)	DATA NOT AVAILABLE	.000	5.7210 IN. XS
(A1M005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

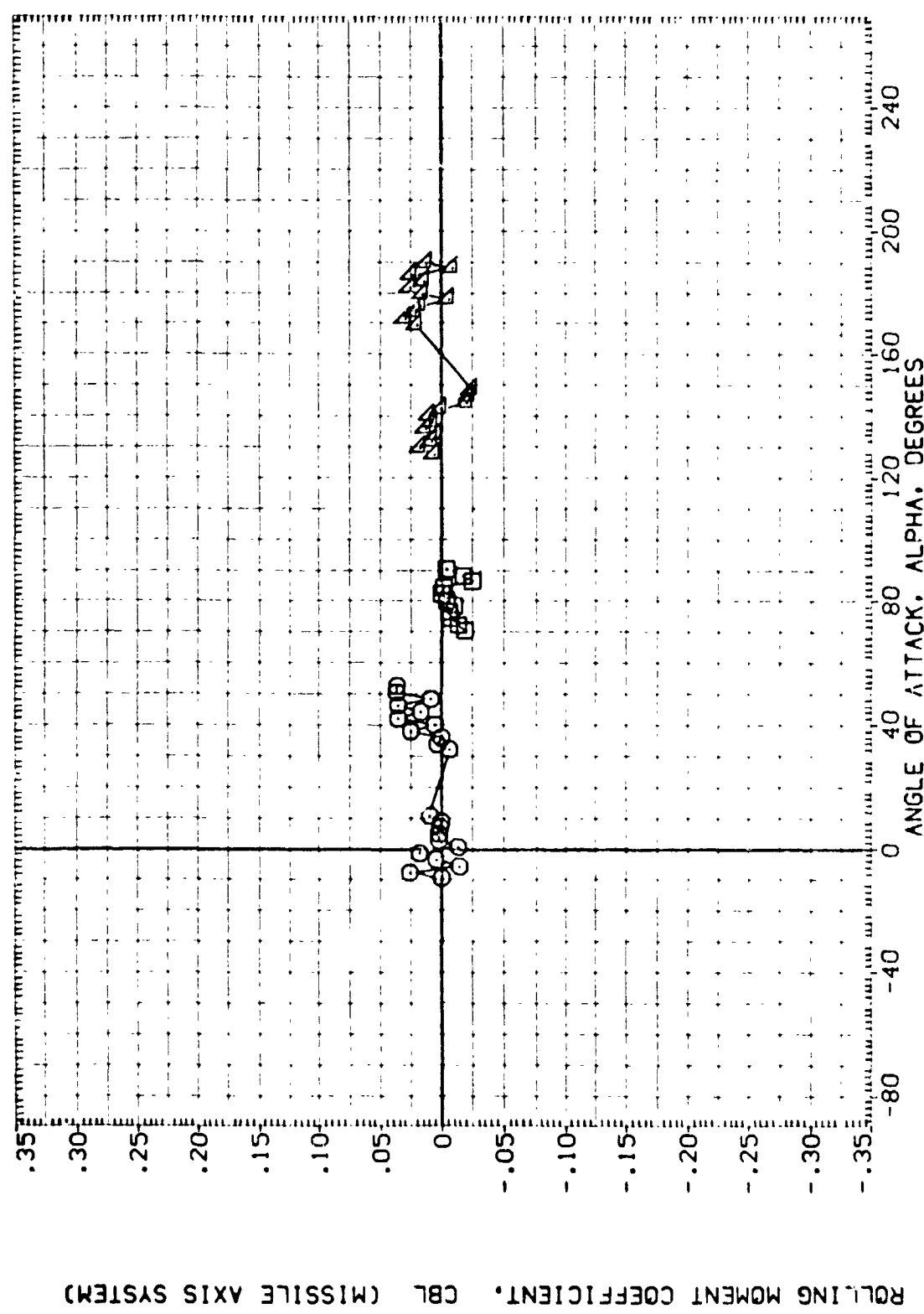


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(1) MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	Phi	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50. IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(AIHQ01)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMPP 5.7210 IN.
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMPP .0000 IN.
			ZMPP .0000 IN.
			SCALE .0055

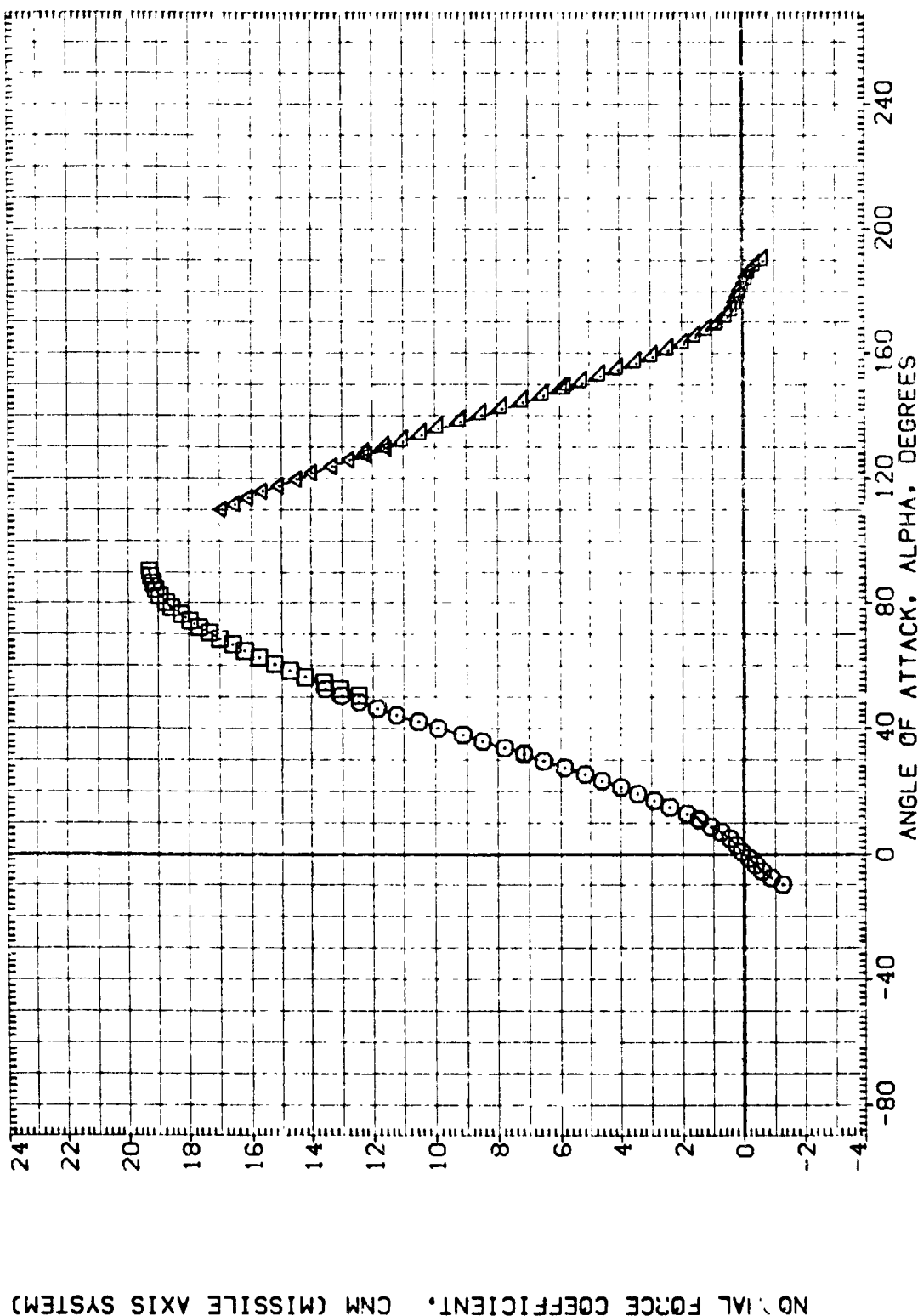


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP 5.7210 IN. X5
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. Y5
			ZMRP .0000 IN. Z5
			SCALE .0055

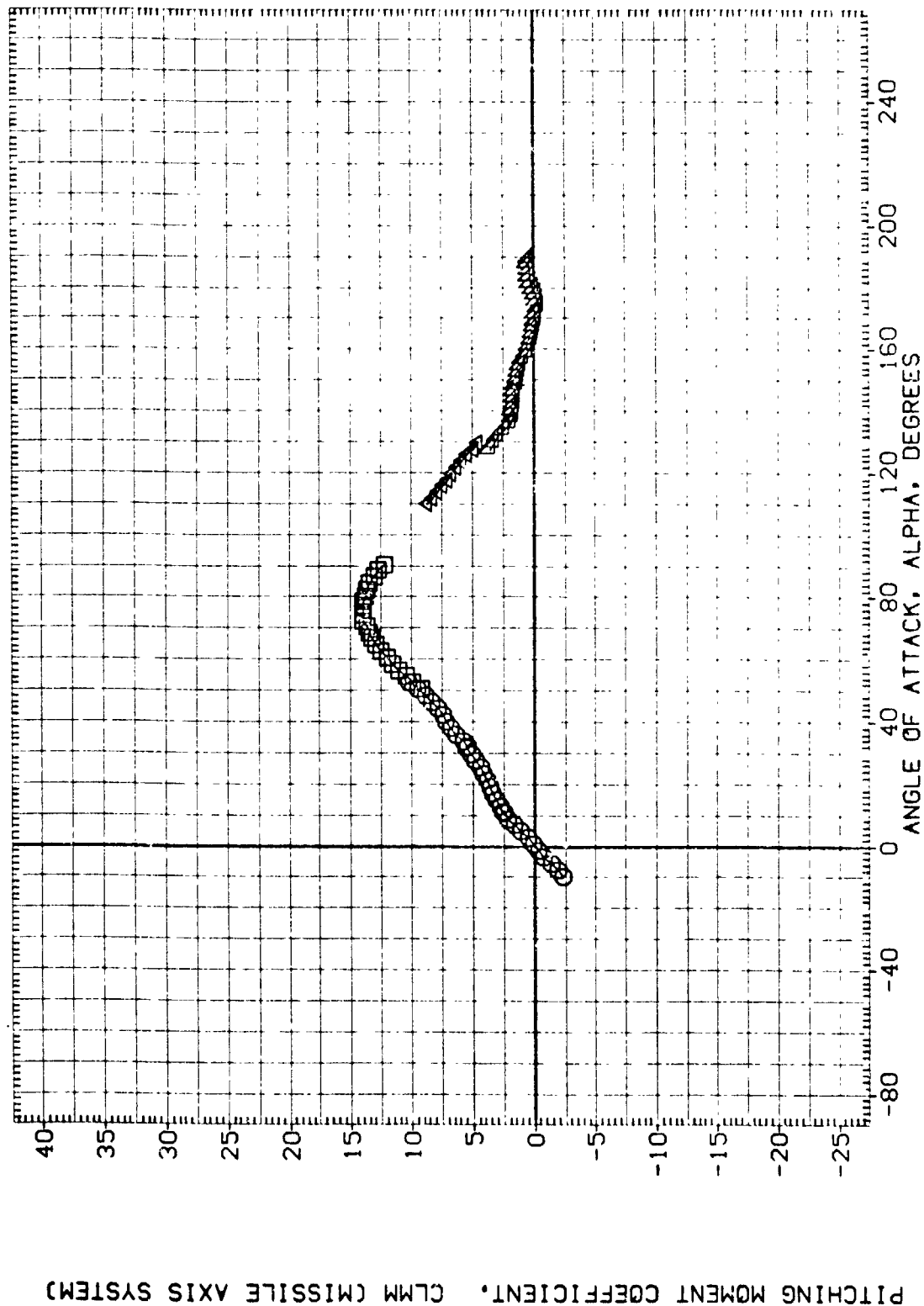


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	LREF .8000 IN.
(A1H001)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	XMRP .0000 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

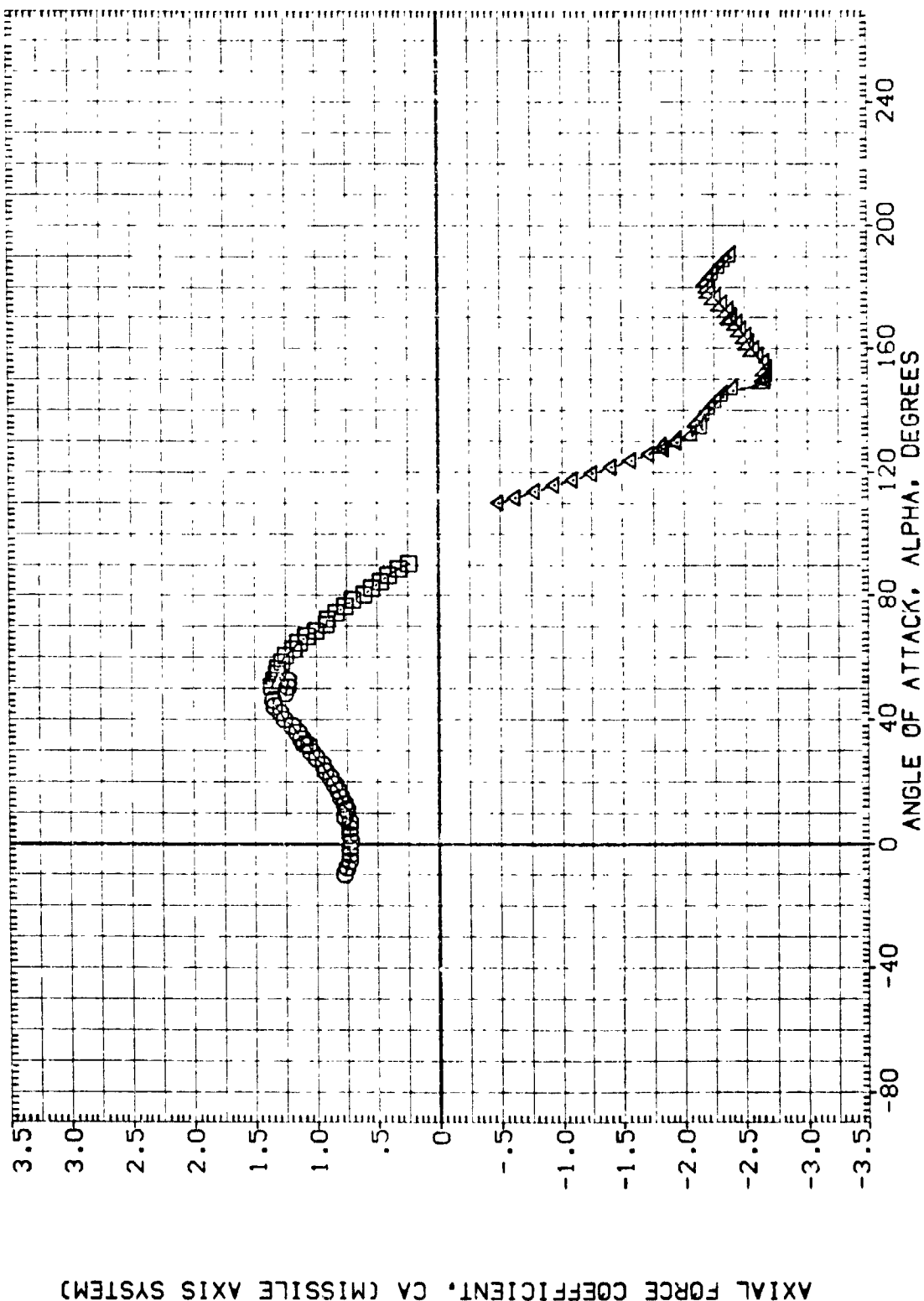


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH = 3.48

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000
.000

DATA SET SYMBOL

(A1H001)	MSFC	TVT604	(SABF)	SR8	CLEAN	V/RINGS
(A1H001)	MSFC	TVT604	(SABF)	SR8	CLEAN	V/RINGS
(A1H008)	DATA	NOT AVAILABLE				
(A1H001)	MSFC	TVT604	(SABF)	SR8	CLEAN	V/RINGS
(A1H001)	MSFC	TVT604	(SABF)	SR8	CLEAN	V/RINGS

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

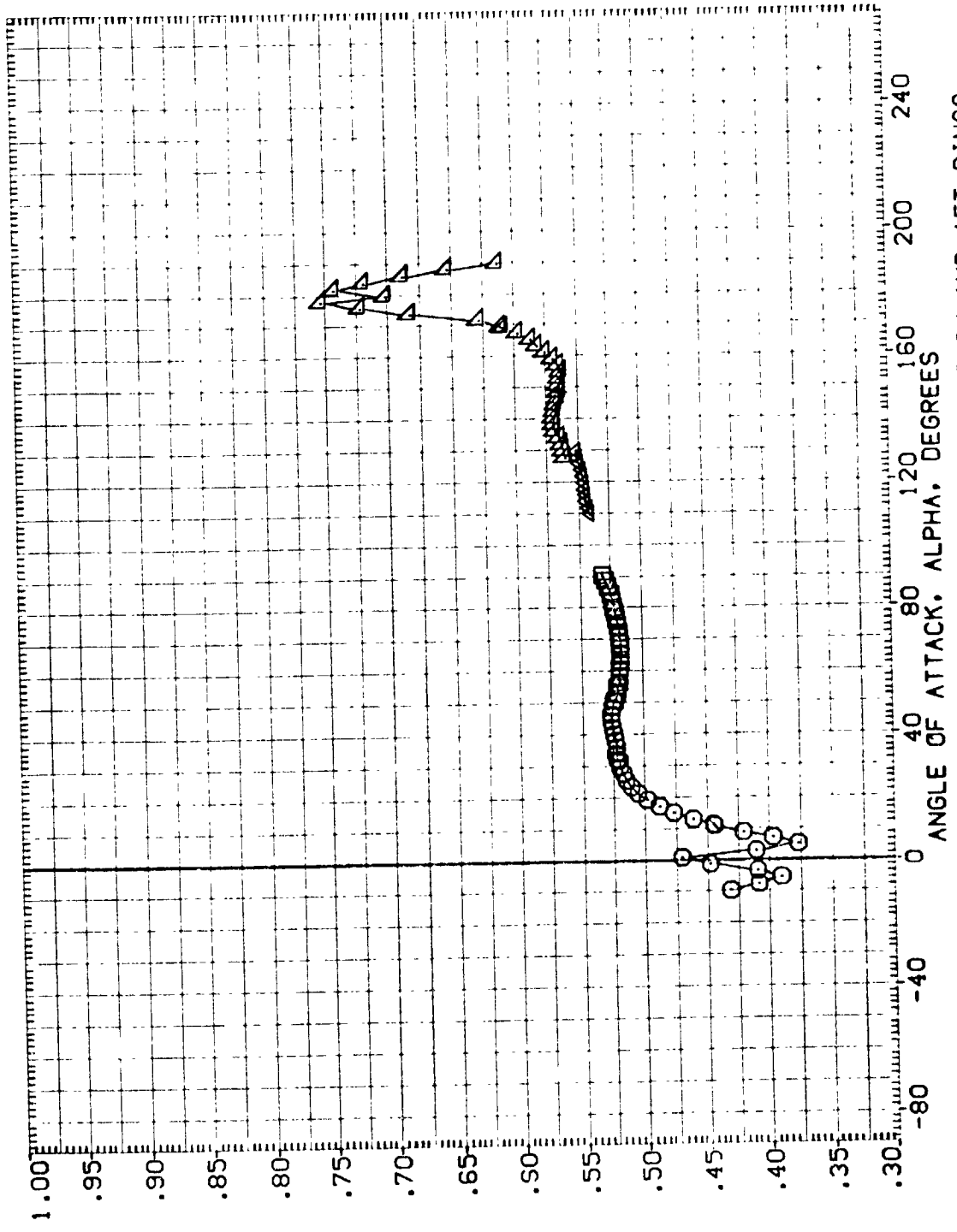


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

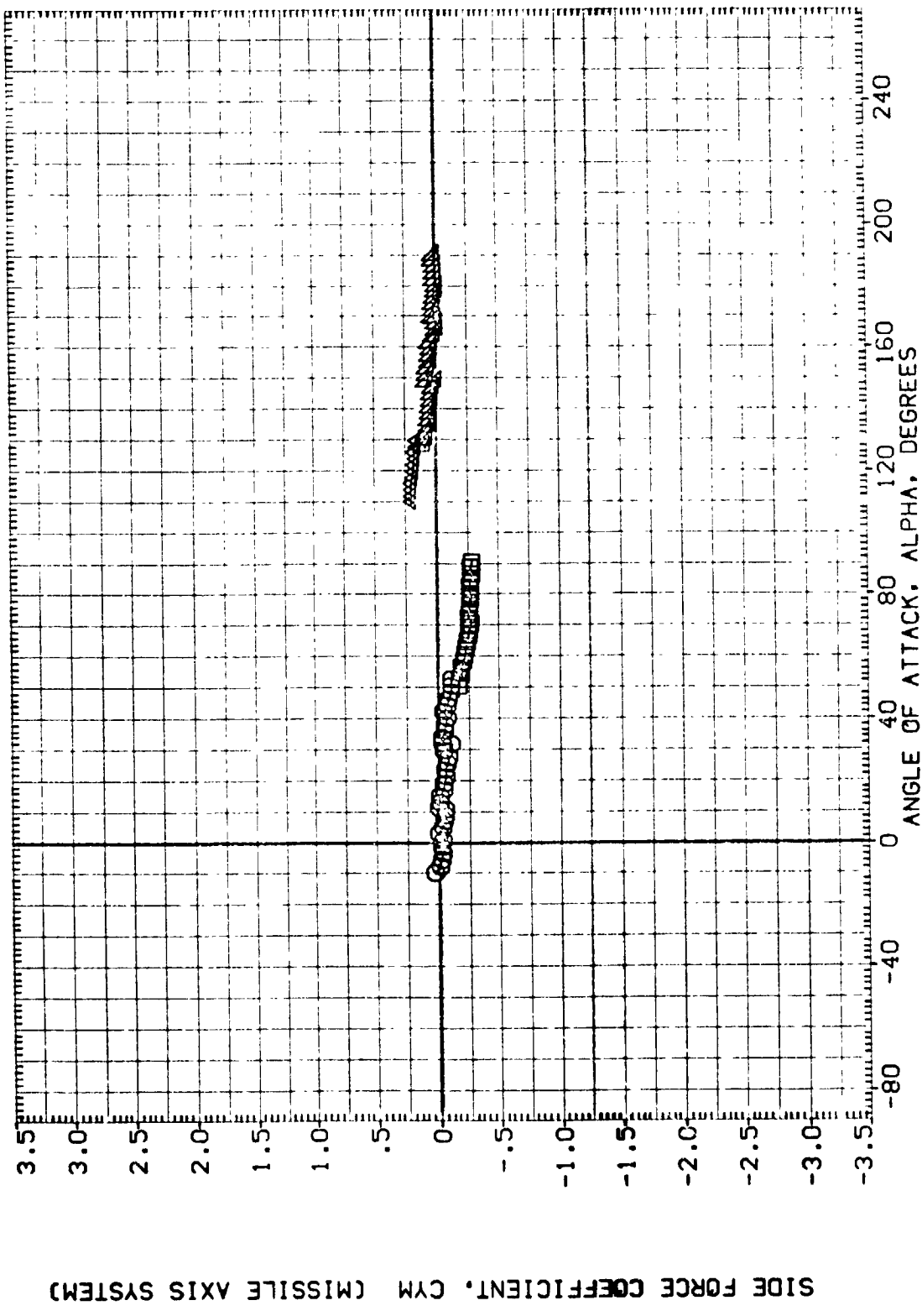


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(CJMACH = 3.48

REFERENCE INFORMATION

SREF	.5030	SQ. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000
.000

DATA SET SYMBOL

(AI-HA01)	MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
(AI-HB01)	MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
(AI-HC08)	DATA	NOT	AVAILABLE			
(AI-HC01)	MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS
(AI-HD01)	MSFC	TVT604	(SABF)	SRB	CLEAN	V/RINGS

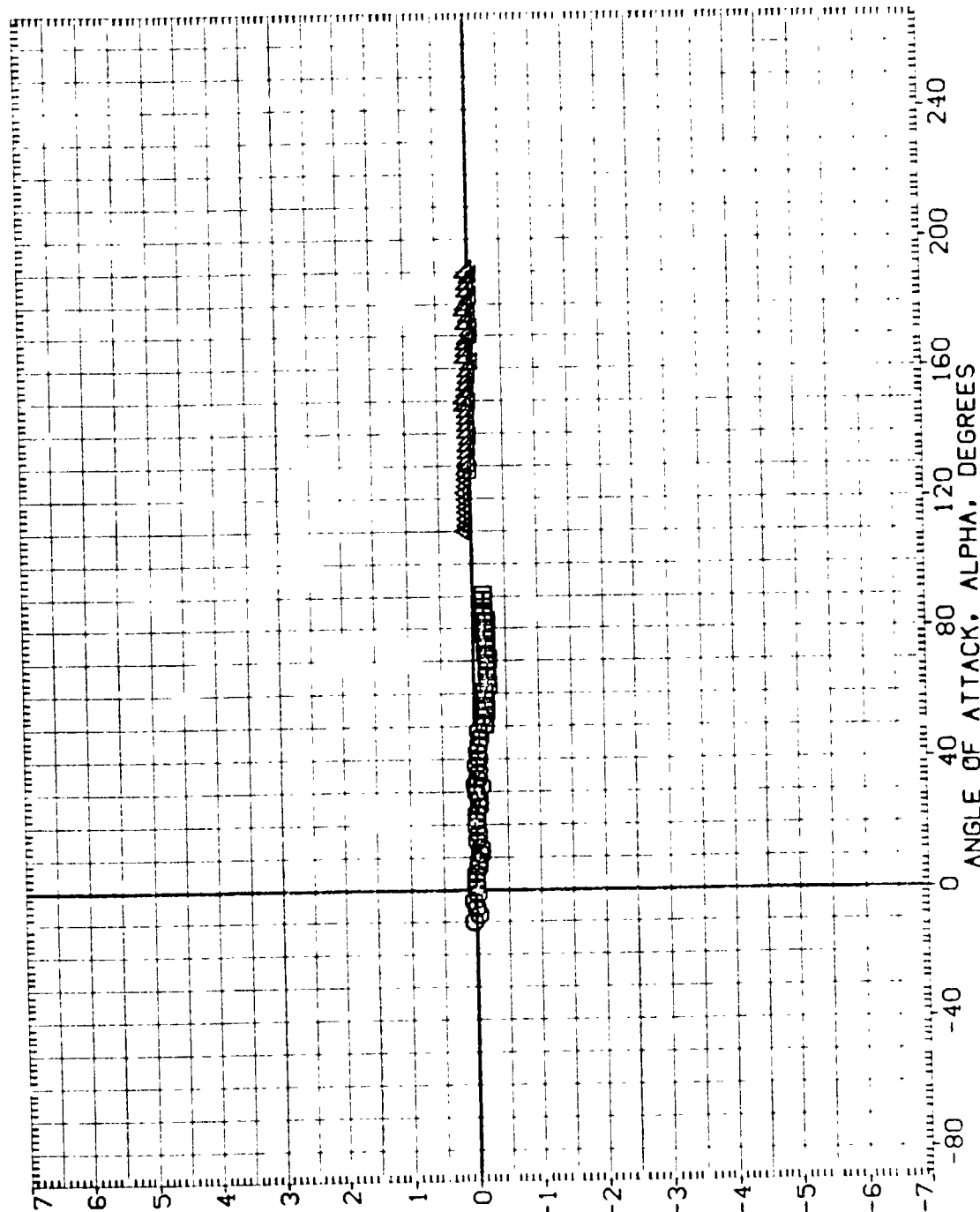


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH - 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
[AIH001]	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
[AIH001]	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
[AIH008]	DATA NOT AVAILABLE	.000	BREF .8000 IN.
[AIH001]	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	XMRP S.7210 IN. XS
[AIH001]	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
[AIH001]	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

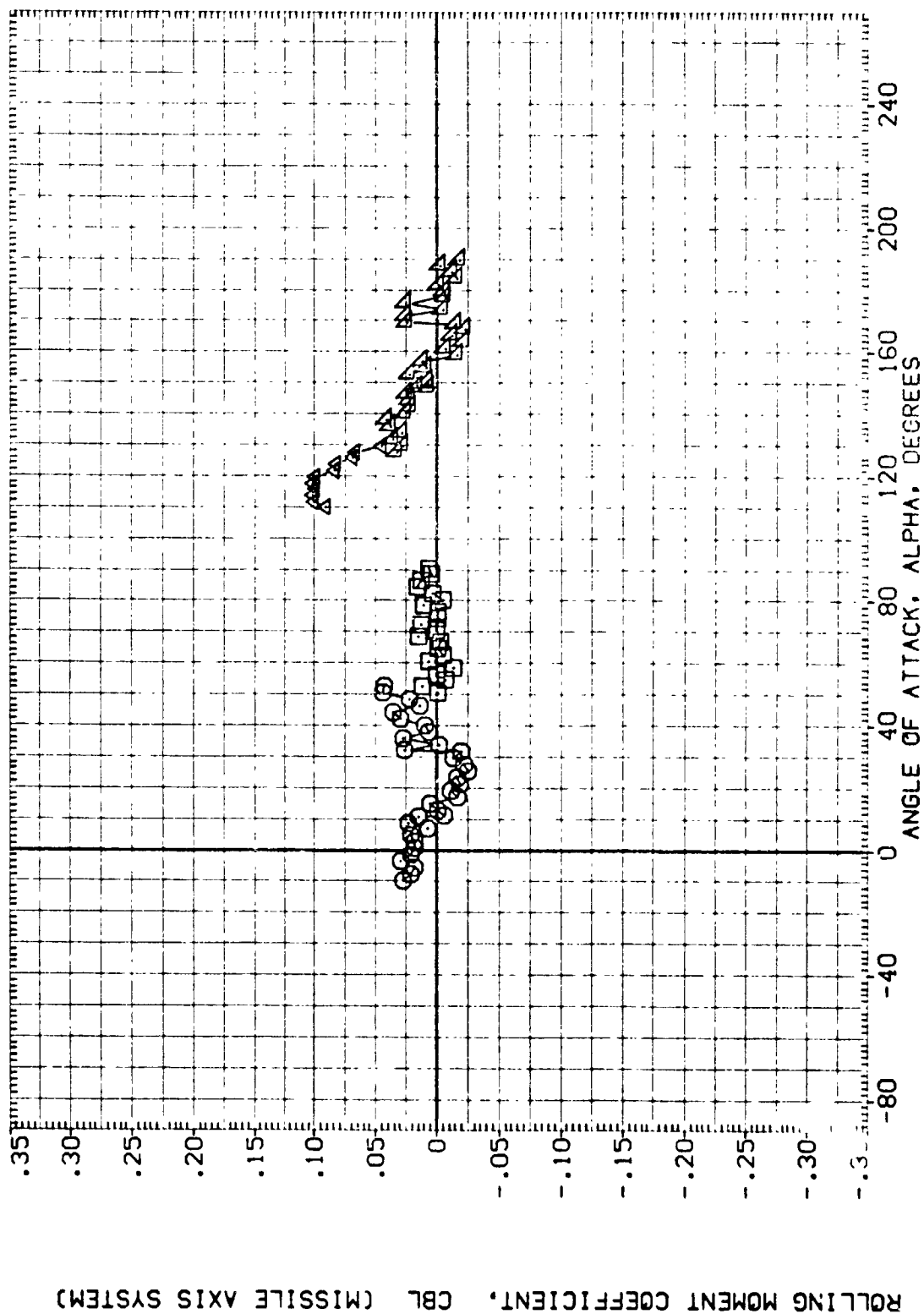


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(J)MACH = 3.48

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000
.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS
(A1H402)	DATA NOT AVAILABLE
(A1H403)	DATA NOT AVAILABLE
(A1H404)	DATA NOT AVAILABLE
(A1H405)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS

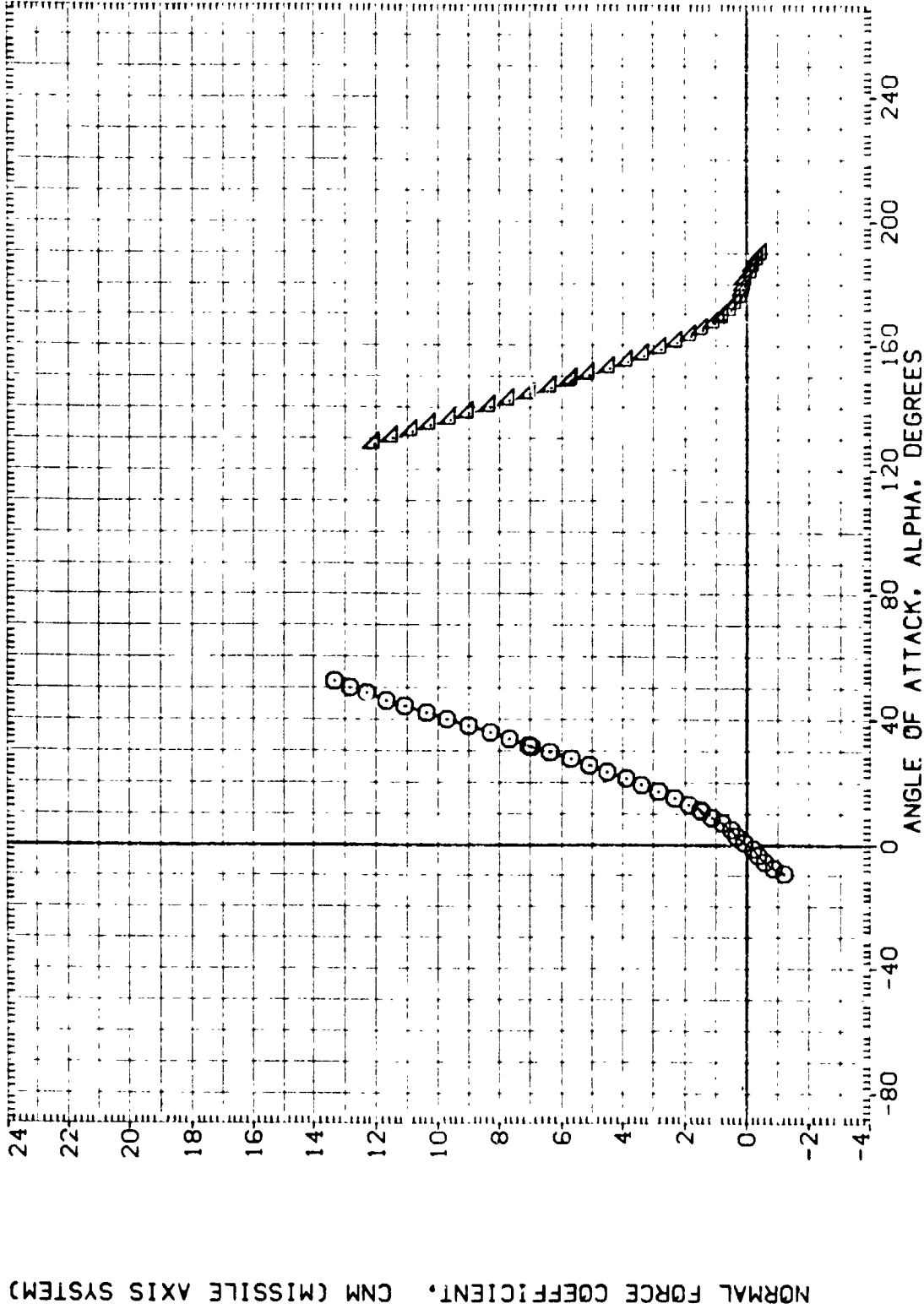


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(K)MACH = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(AIHQ02)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(AIHQ03)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(AIHQ04)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(AIHQ05)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

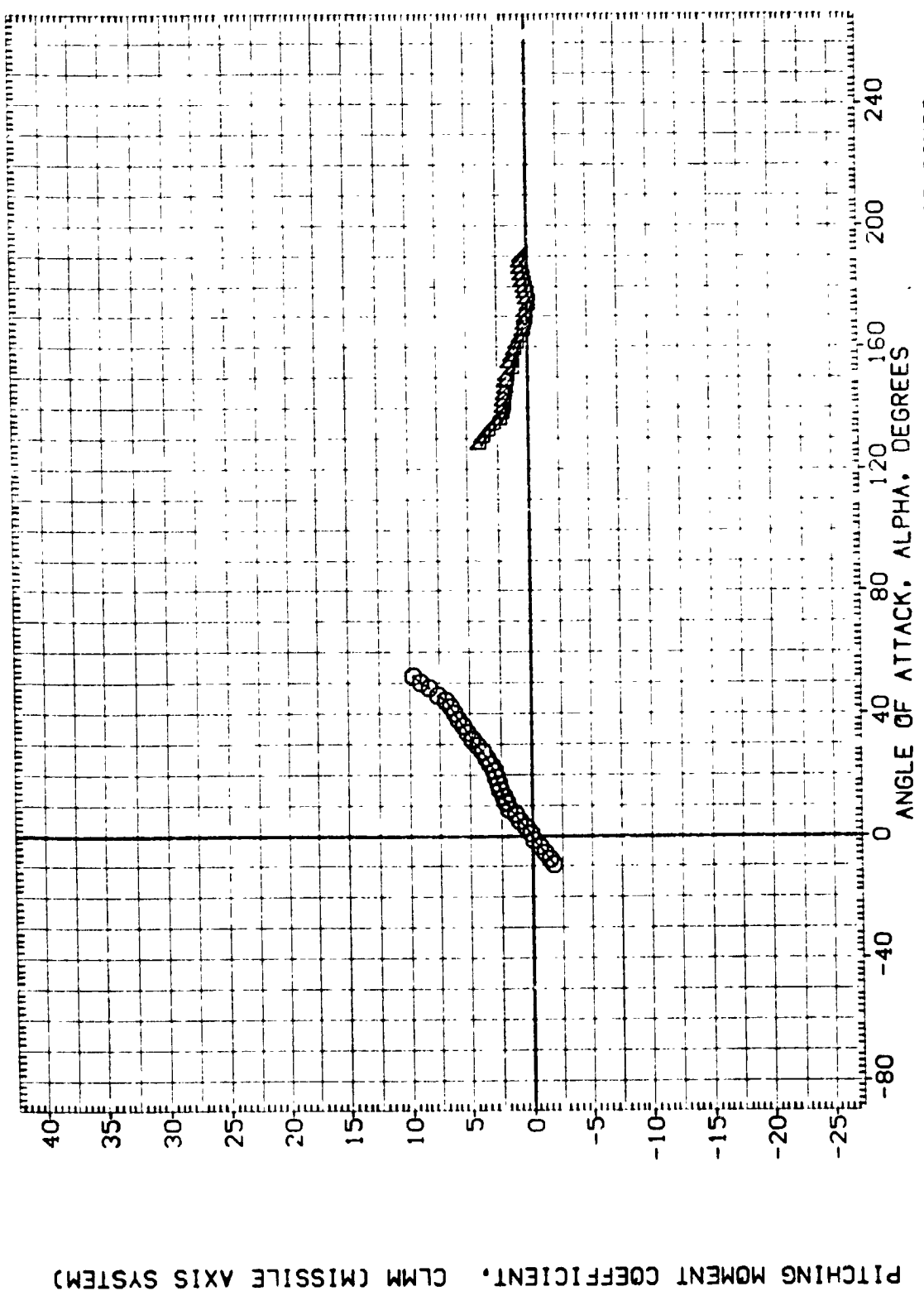


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
{AIHQ01}	REFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .8010 SQ IN.
{AIHQ02}	DATA NOT AVAIL	.000	LREF .8000 IN.
{AIHQ03}	DATA NOT AVAIL	.000	BREF .8000 IN.
{AIHQ04}	DATA NOT AVAIL	.000	YMRP 5.72 0 IN.
{AIHQ05}	REFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN.
			SCALE .0055

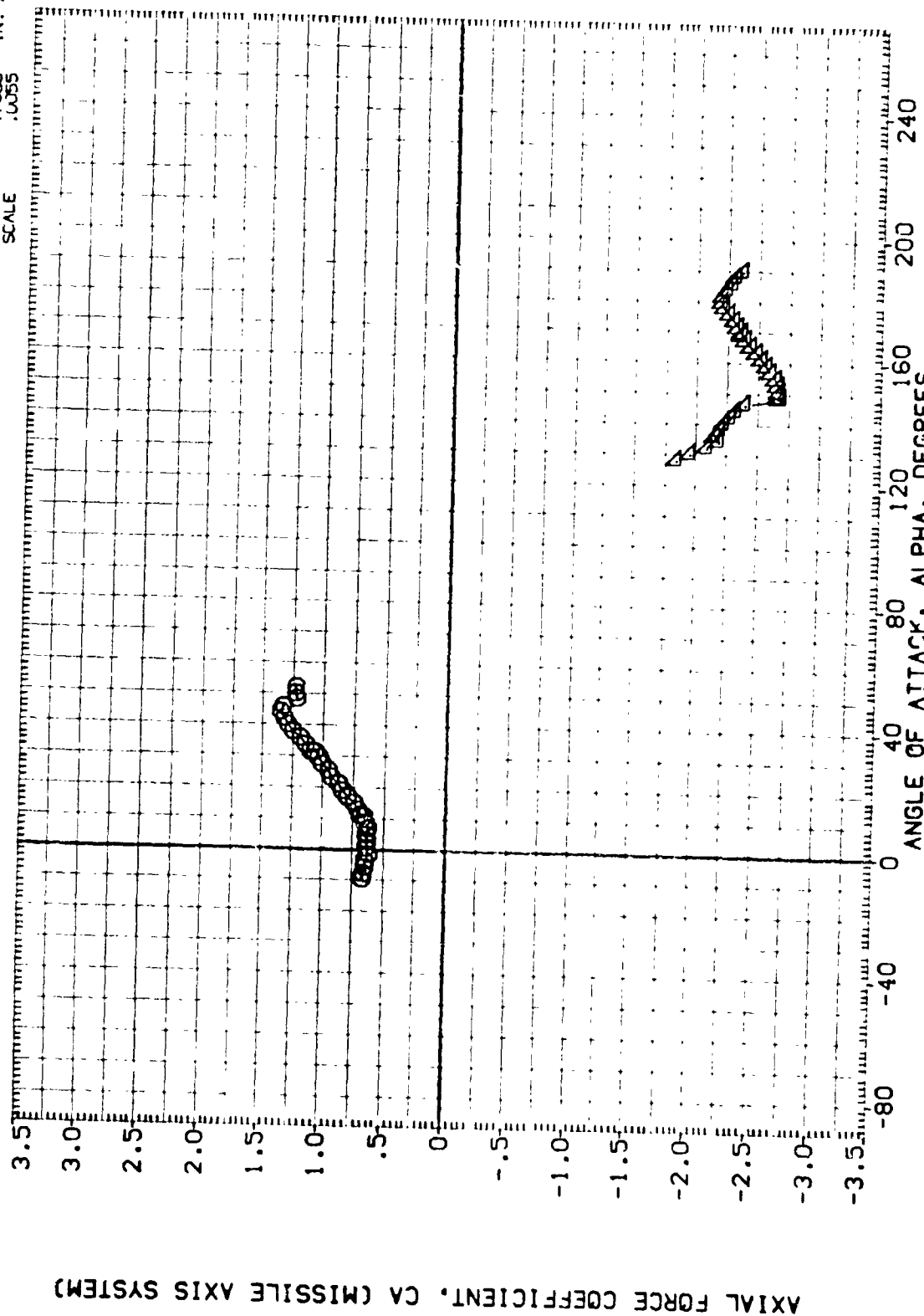


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
 (K)MACH = 4.00

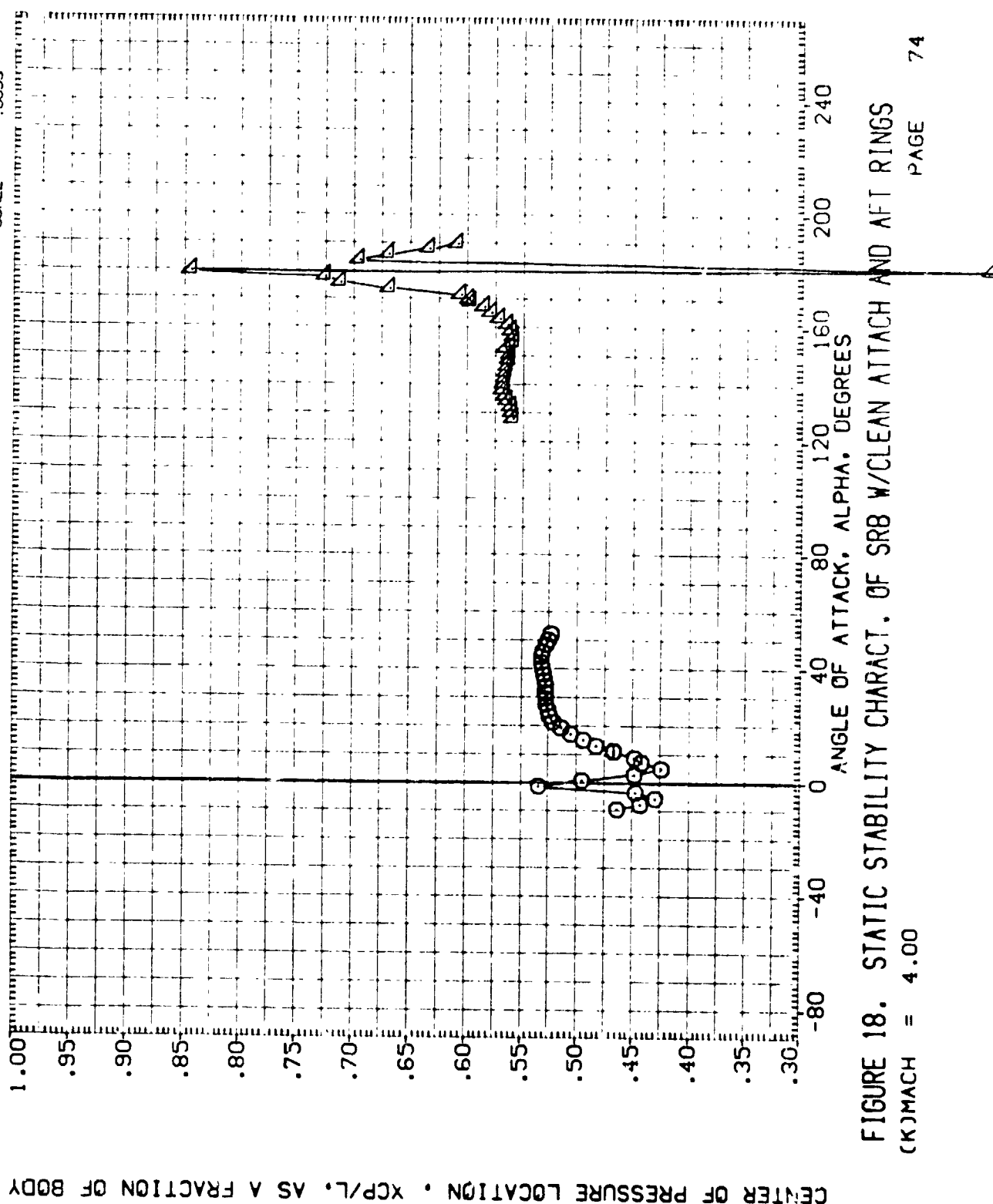
[illegible]

FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

**(K)MACH = 4.00**

==

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	DATA NOT AVAILABLE	.000	XMRP 5.7210 IN. XS
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

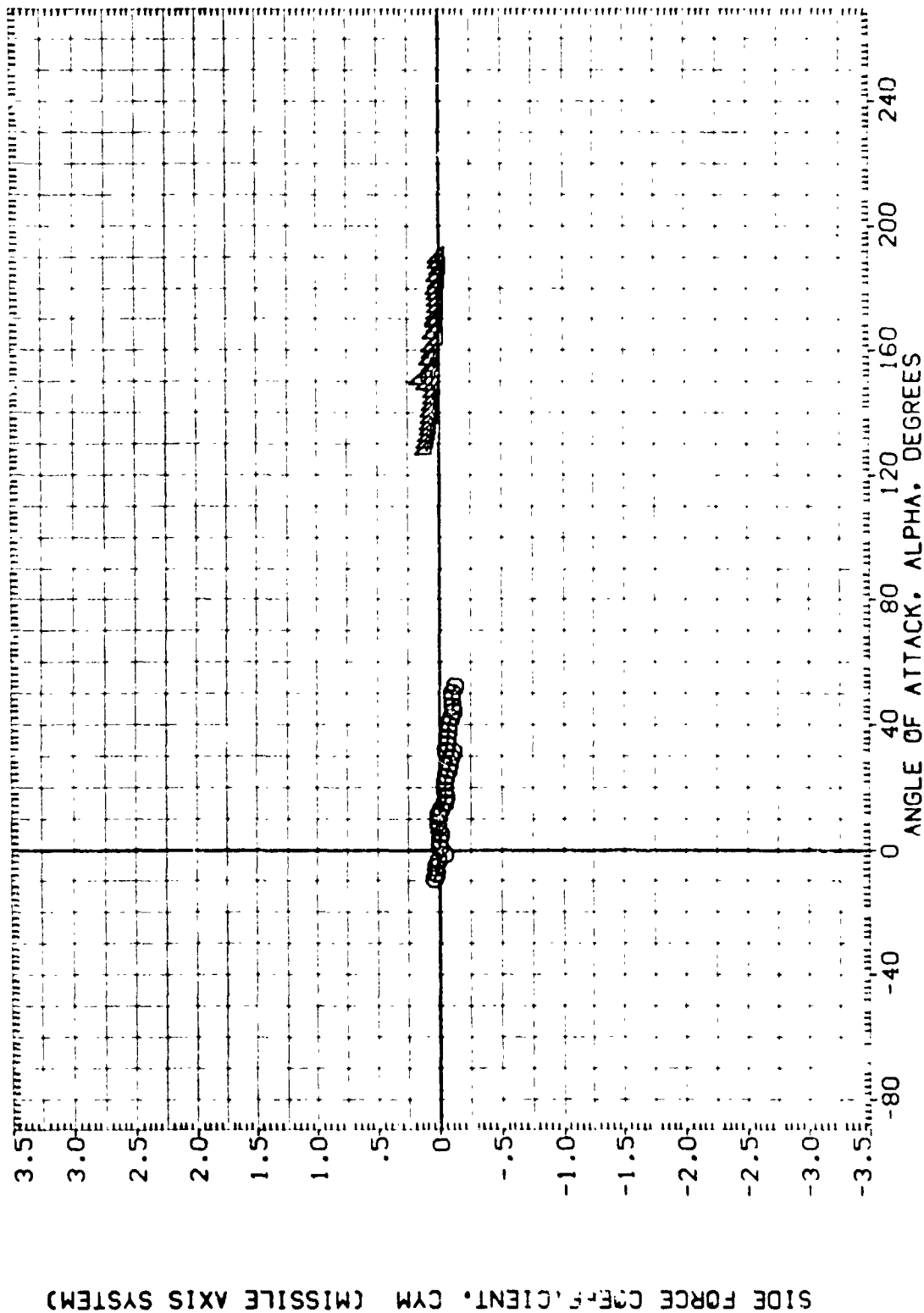


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(K)MACH = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H001)	MSFC TVTSD4 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50. IN.
(A1H001)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H008)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H001)	DATA NOT AVAILABLE	.000	YMRP 5.7210 IN. XS
(A1H001)	MSFC TVTSD4 (SABF) SRB CLEAN V/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

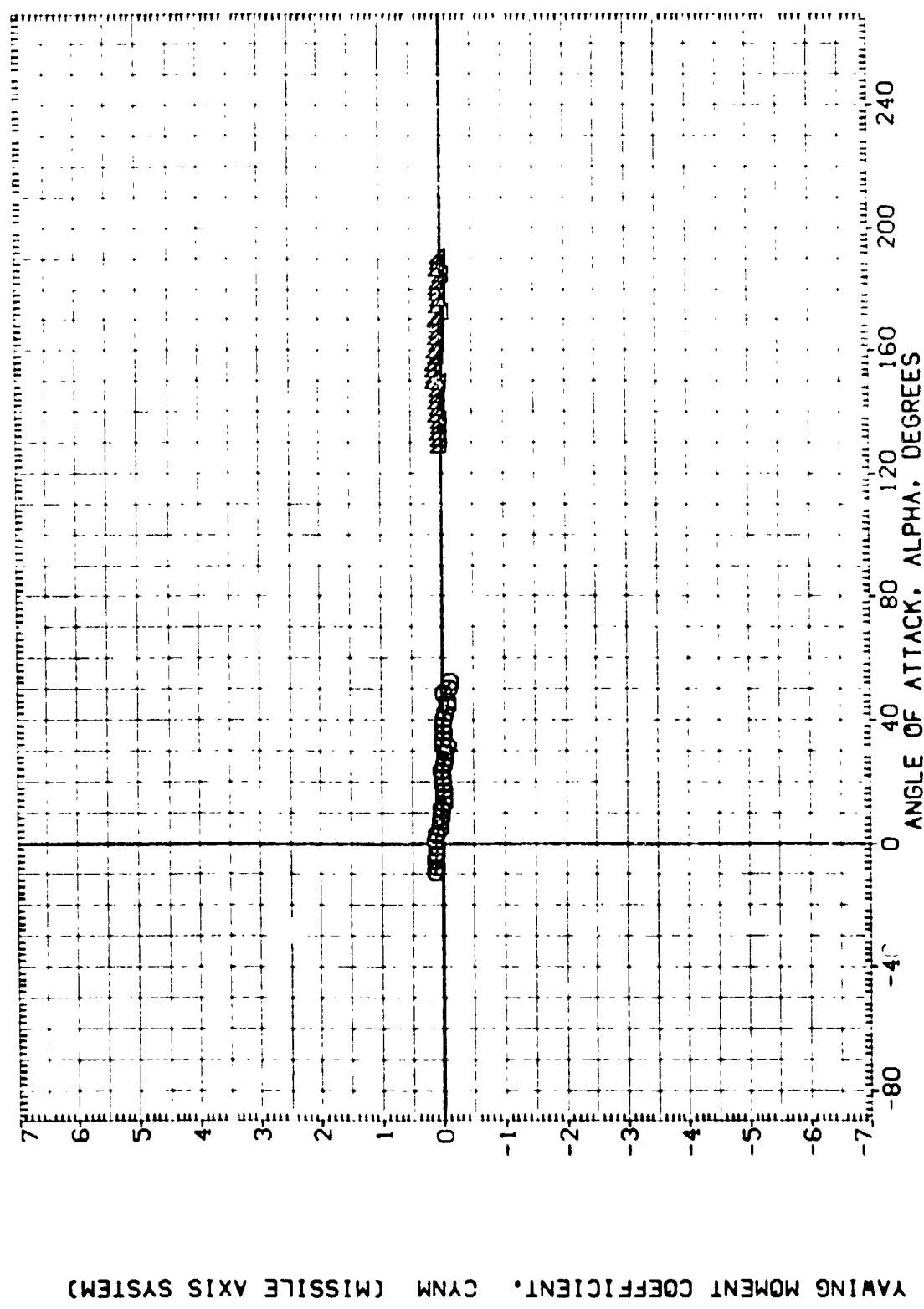


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(K)MACH = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1H402)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H403)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H404)	DATA NOT AVAILABLE	.000	X-MRP .7210 IN. XS
(A1H405)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	Y-MRP .0000 IN. YS
			Z-MRP .0000 IN. ZS
			SCALE .0055

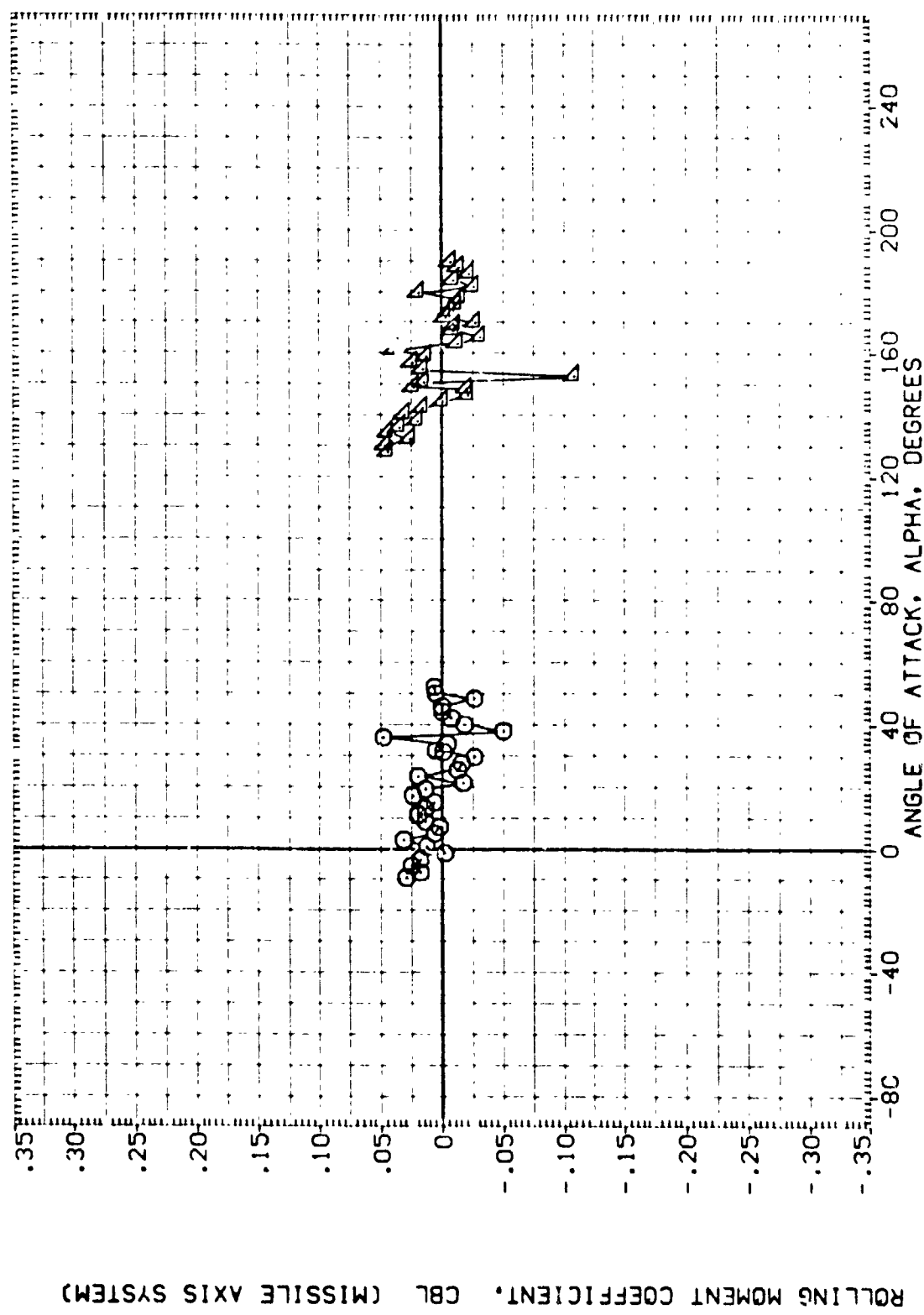


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS



REFERENCE INFORMATION

CREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000

DATA SET SYMBOL

(A1H001)	MSFC TVT604 (SABF)	SRB CLEAN V/RINGS
(A1H002)	DATA NOT AVAILABLE	
(A1H003)	DATA NOT AVAILABLE	
(A1H004)	DATA NOT AVAILABLE	
(A1H005)	MS-C TVT604 (SABF)	SRB CLEAN V/RINGS

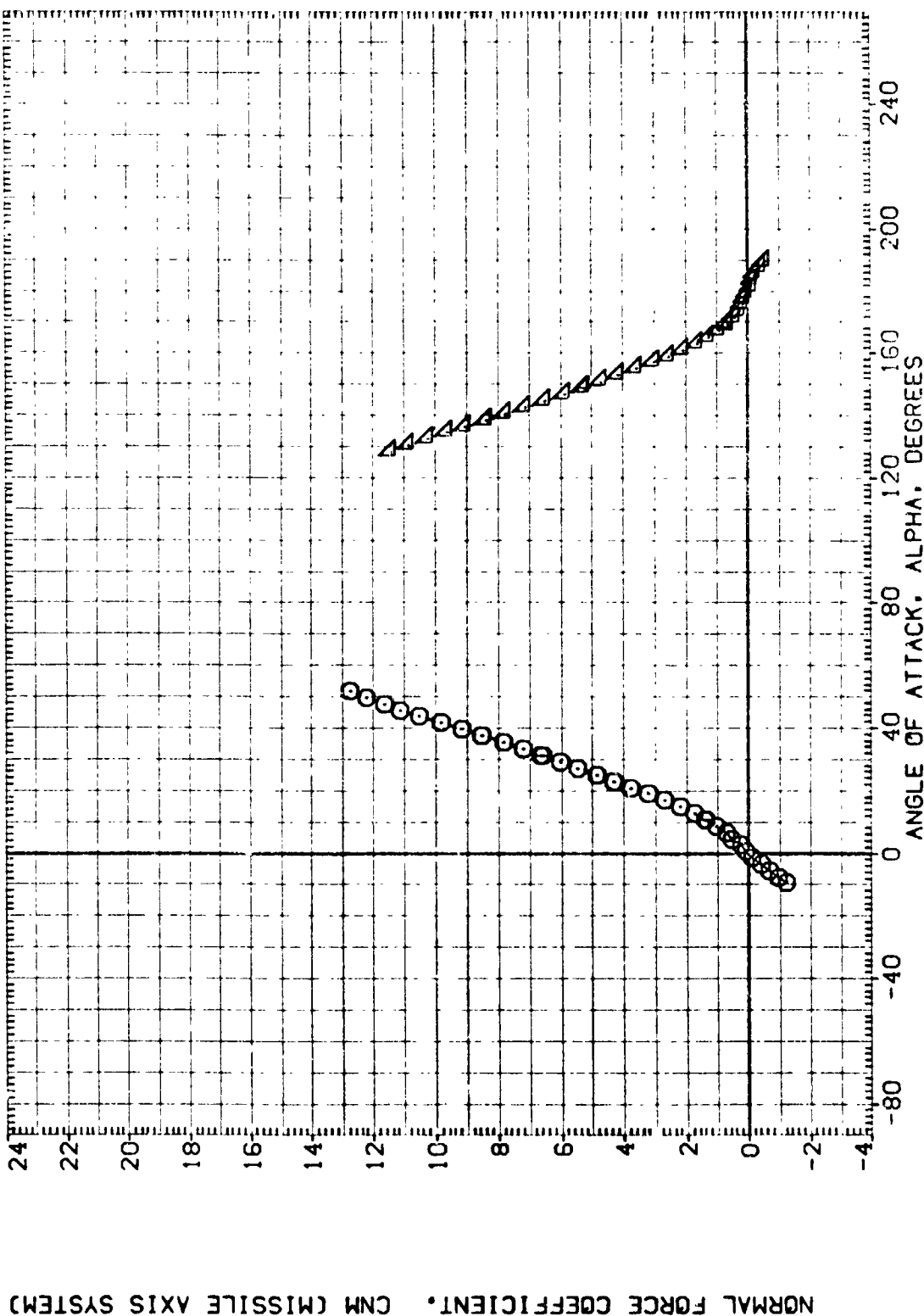


FIGURE 18. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

(L)MACH = 4.45

REFERENCE INFORMATION

SREF	.5030	SO	N
LREF	.8000	IN	
BREF	.8000	IN	
XMRP	5.7210	IN	XS
YMRP	.0000	IN	YS
ZMRP	.0000	IN	ZS
SCALE	.0555		

PHI

.000
.000
.000
.000
.000

DATA SET SYMBOL    CONFIGURATION DESCRIPTION

(A1H401)	MSFC TVT604 (SABF) S-B CLEAN W/RINGS
(A1H401)	DATA NOT AVAILABLE
(A1H408)	DATA NOT AVAILABLE
(A1H401)	DATA NOT AVAILABLE
(A1H401)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS

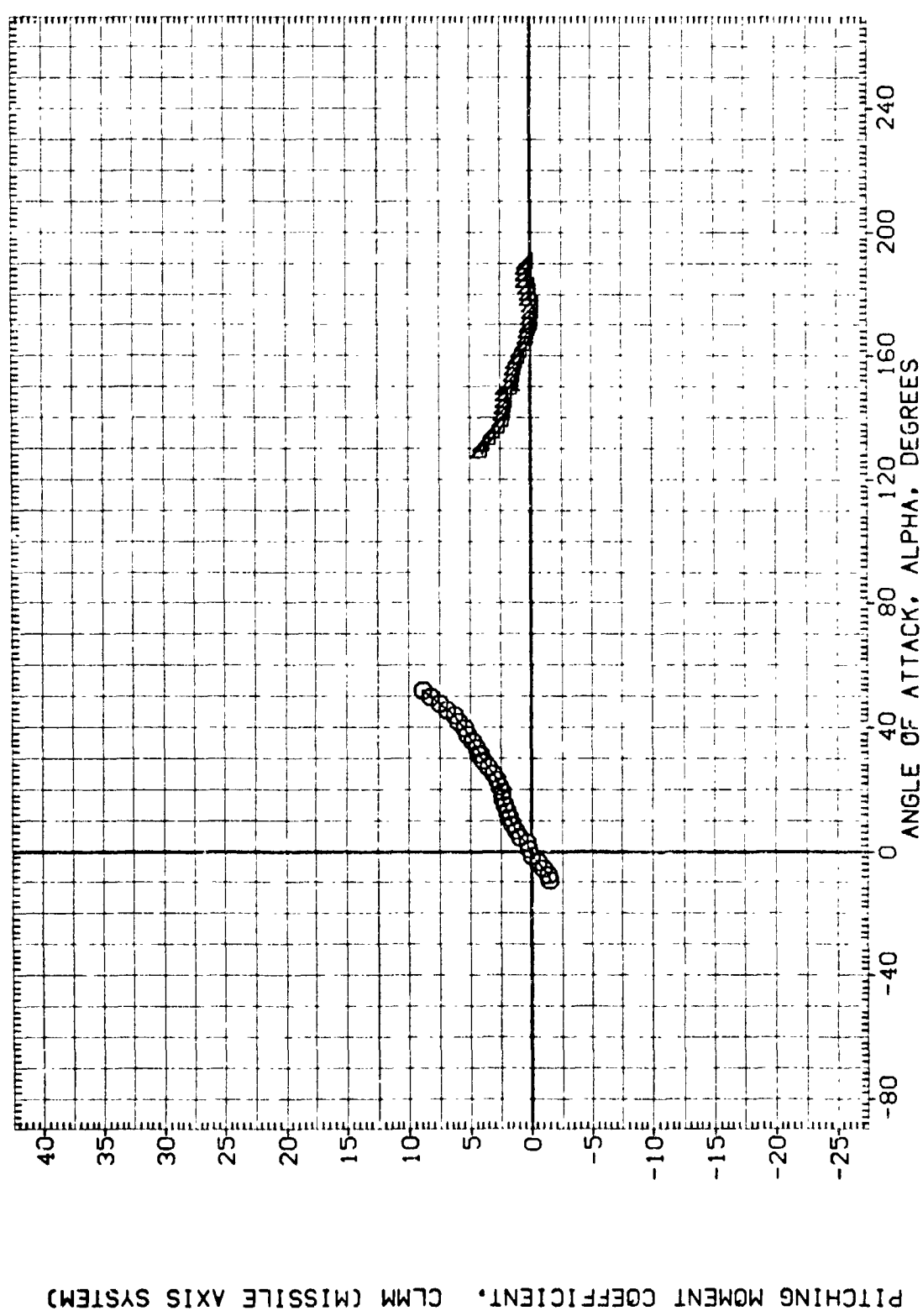


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HA01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	SREF .5030 SQ. IN.
(A1HB01)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1HC01)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1HD01)	DATA NOT AVAILABLE	.000	XMRP 5.72 IN. XS
(A1HE01)	MSFC TVT604 (SABF) SRB CLEAN W/RINGS	.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

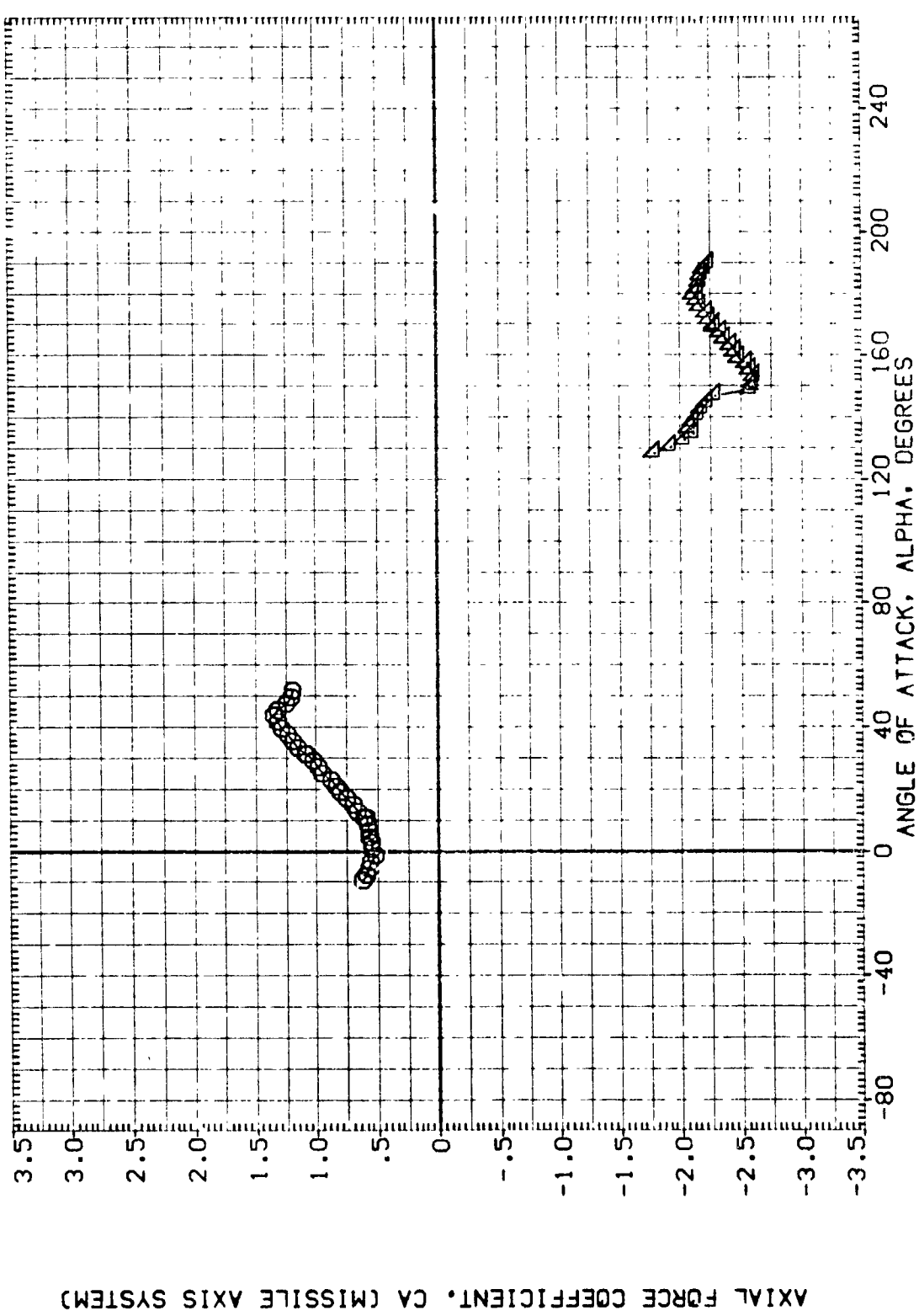


FIGURE 18. STATIC STABILITY CHARACTER OF SRB W/CLEAN ATTACH AND AFT RINGS

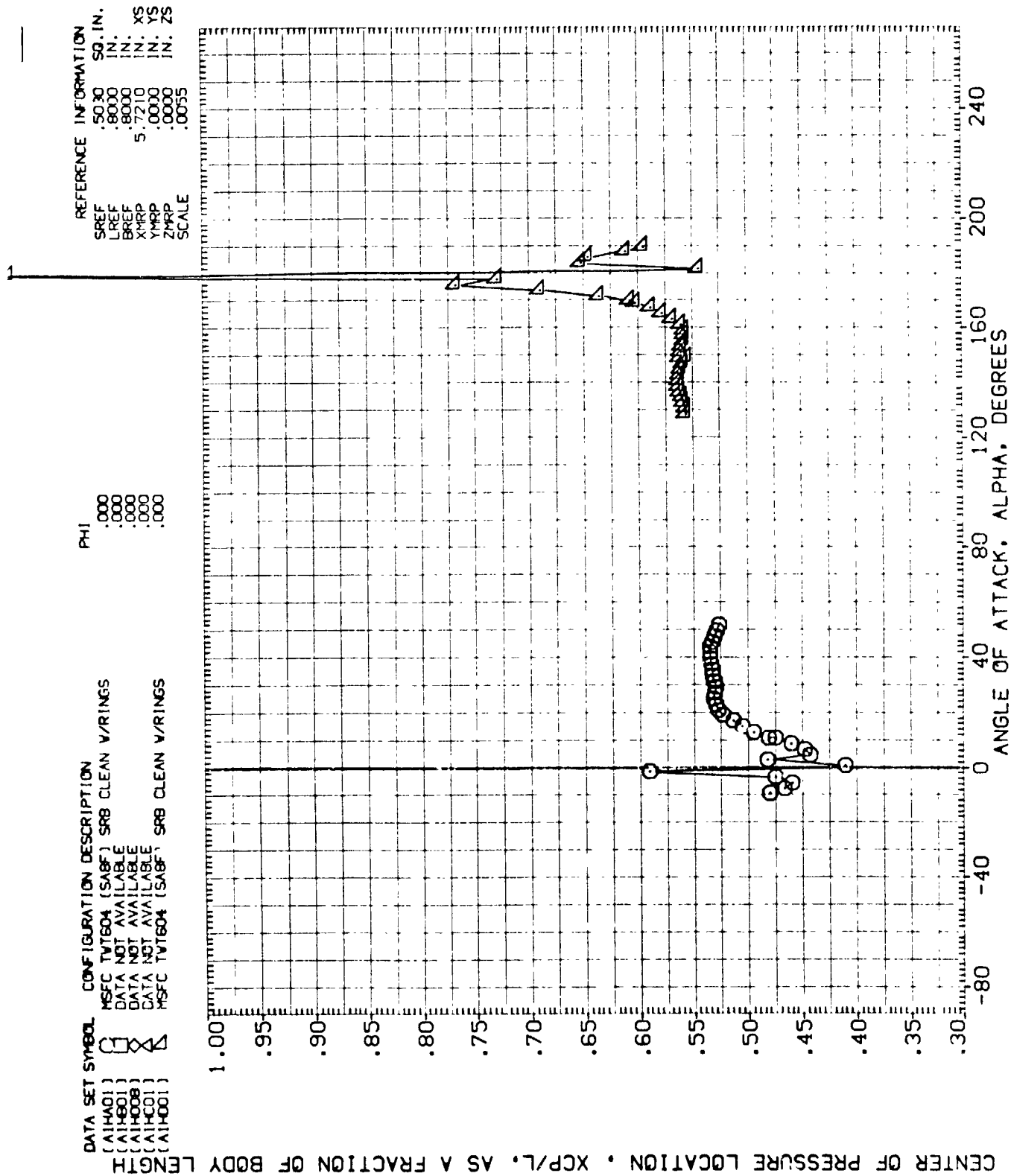


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

(L)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
[AIH001]	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	SREF .50.10 50. IN.
[AIH001]	DATA NOT AVAILABLE	.000	LREF .8000 IN.
[AIH008]	DATA NOT AVAILABLE	.000	BREF .8000 IN.
[AIH001]	DATA NOT AVAILABLE	.000	YMRP 5.7210 IN. XS
[AIH001]	MSFC TVT804 (SABF) SRB CLEAN V/RINGS	.000	ZMRP .0000 IN. ZS
			SCALE .0055

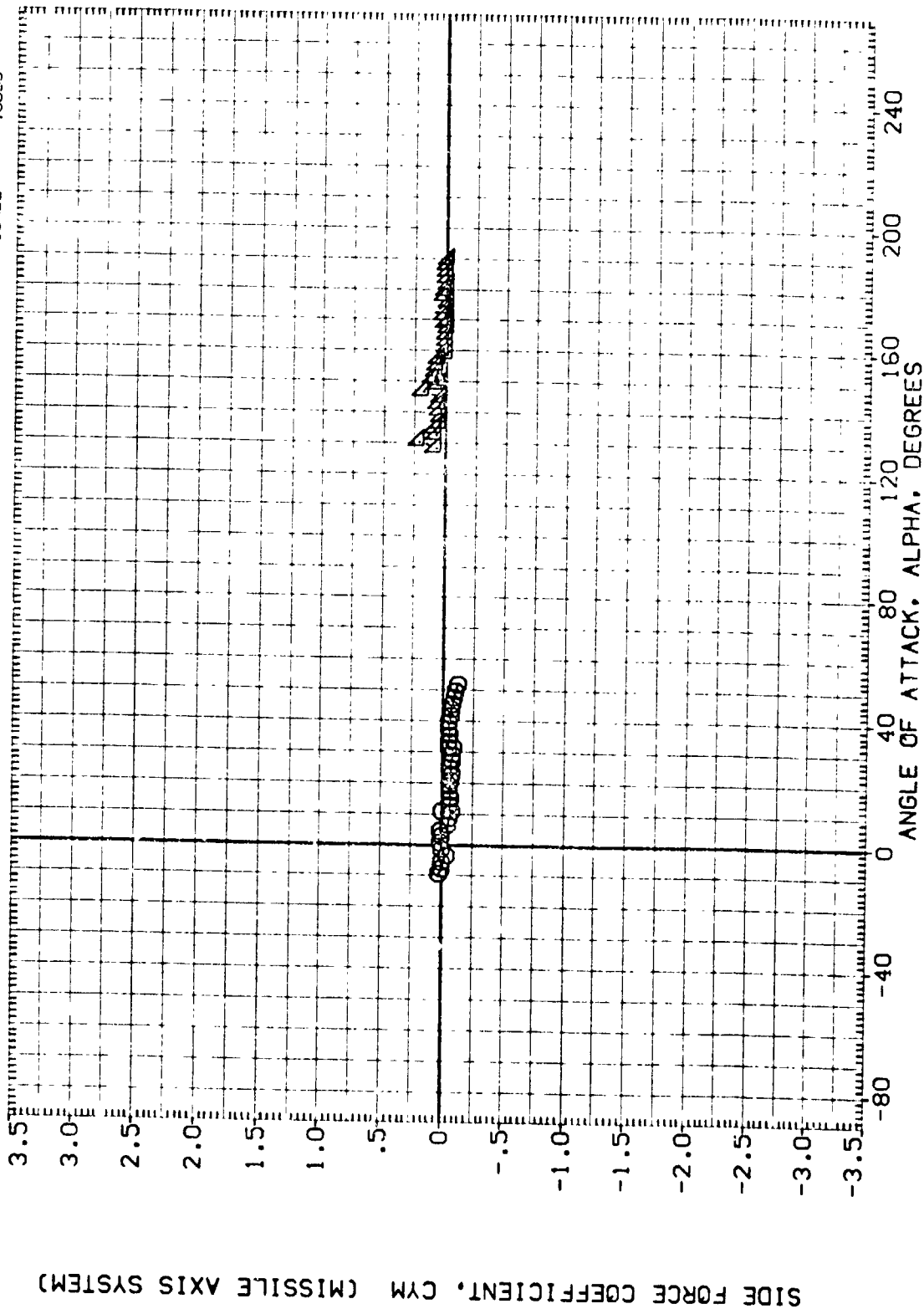


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS  
(L)MACH = 4.45

REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H001) MSFC TWT604 (SABF) SRB CLEAN V/RINGS  
 (A1H001) DATA NOT AVAILABLE  
 (A1H008) DATA NOT AVAILABLE  
 (A1H001) DATA NOT AVAILABLE  
 (A1H001) MSFC TWT604 (SABF) SRB CLEAN V/RINGS

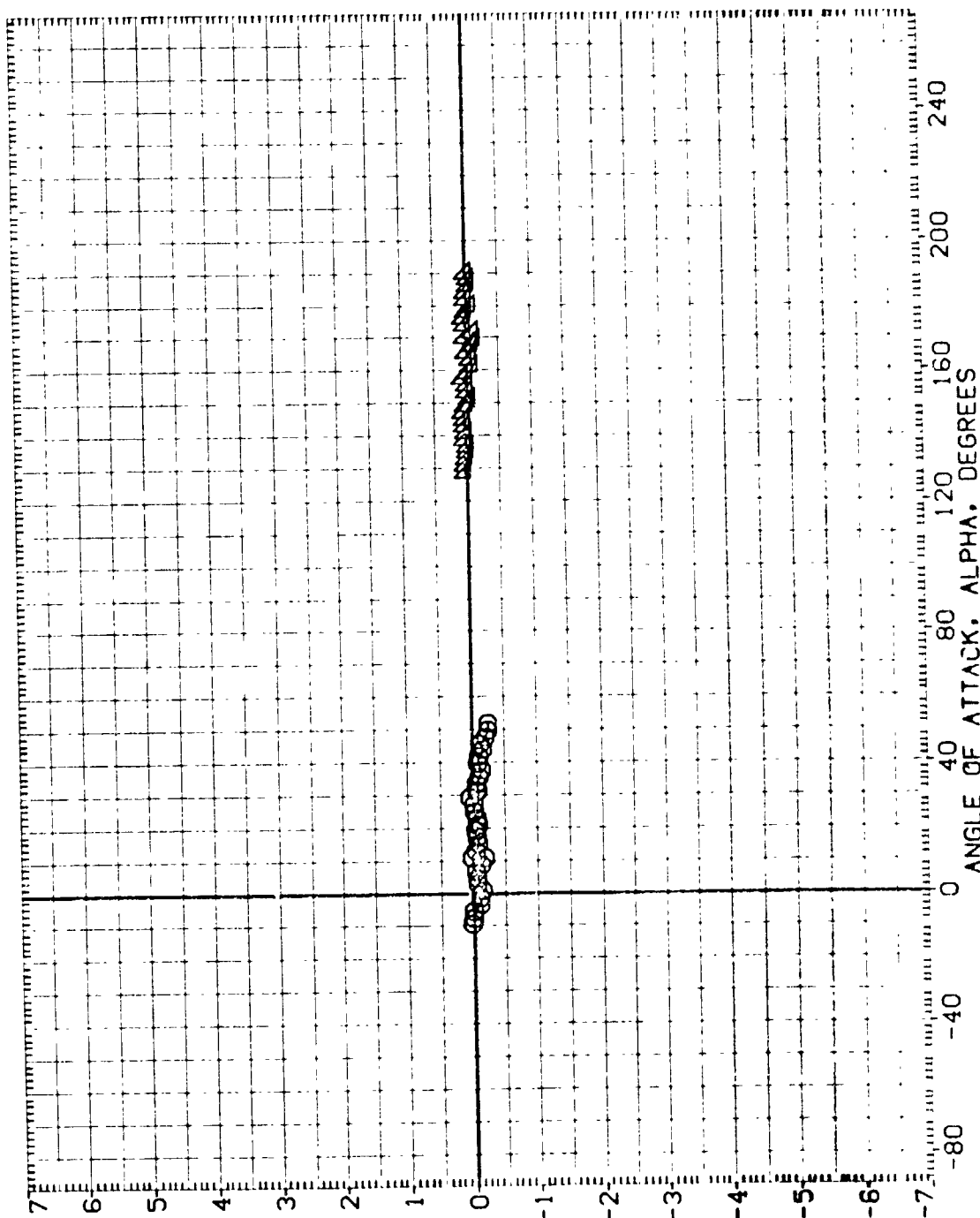


FIGURE 13. STATIC STABILITY CHARACT. OF SRB W/CLEAN ATTACH AND AFT RINGS

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (AIHQ01) MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 (AIHQ01) DATA NOT AVAILABLE  
 (AIHQ08) DATA NOT AVAILABLE  
 (AIHQ01) DATA NOT AVAILABLE  
 (AIHQ01) MSFC TVT604 (SABF) SRB CLEAN V/RINGS

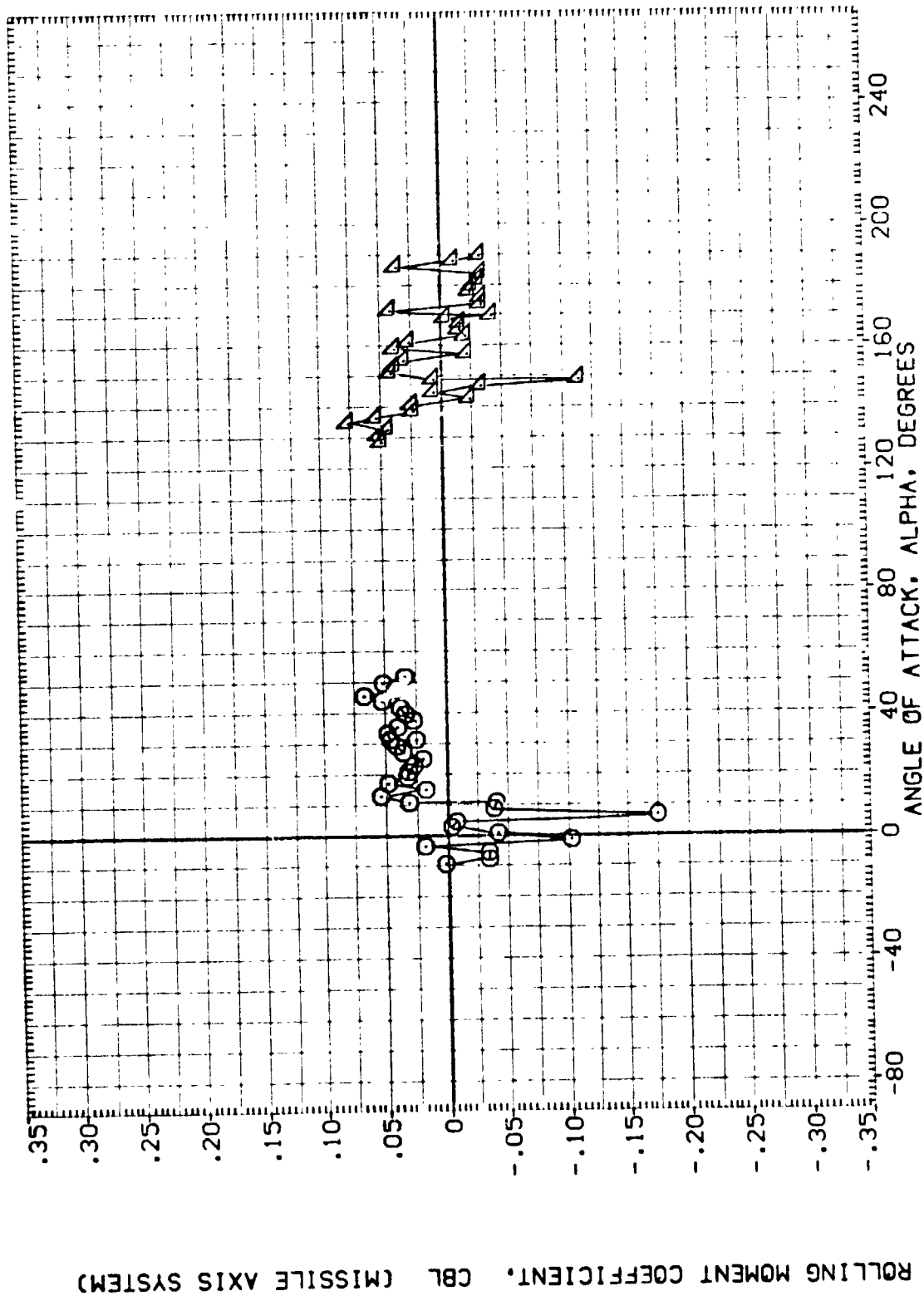


FIGURE 18. STATIC STABILITY CHARACTERISTICS OF SRB W/CLEAN ATTACH AND AFT RINGS

PHI

REFERENCE INFORMATION	
SREF	.5030 SQ. IN.
LREF	.8000 IN.
BREF	.8000 IN.
XMRP	5.7210 IN. XS
YMRP	.0000 IN. YS
ZMRP	.0000 IN. ZS
SCALE	.0055

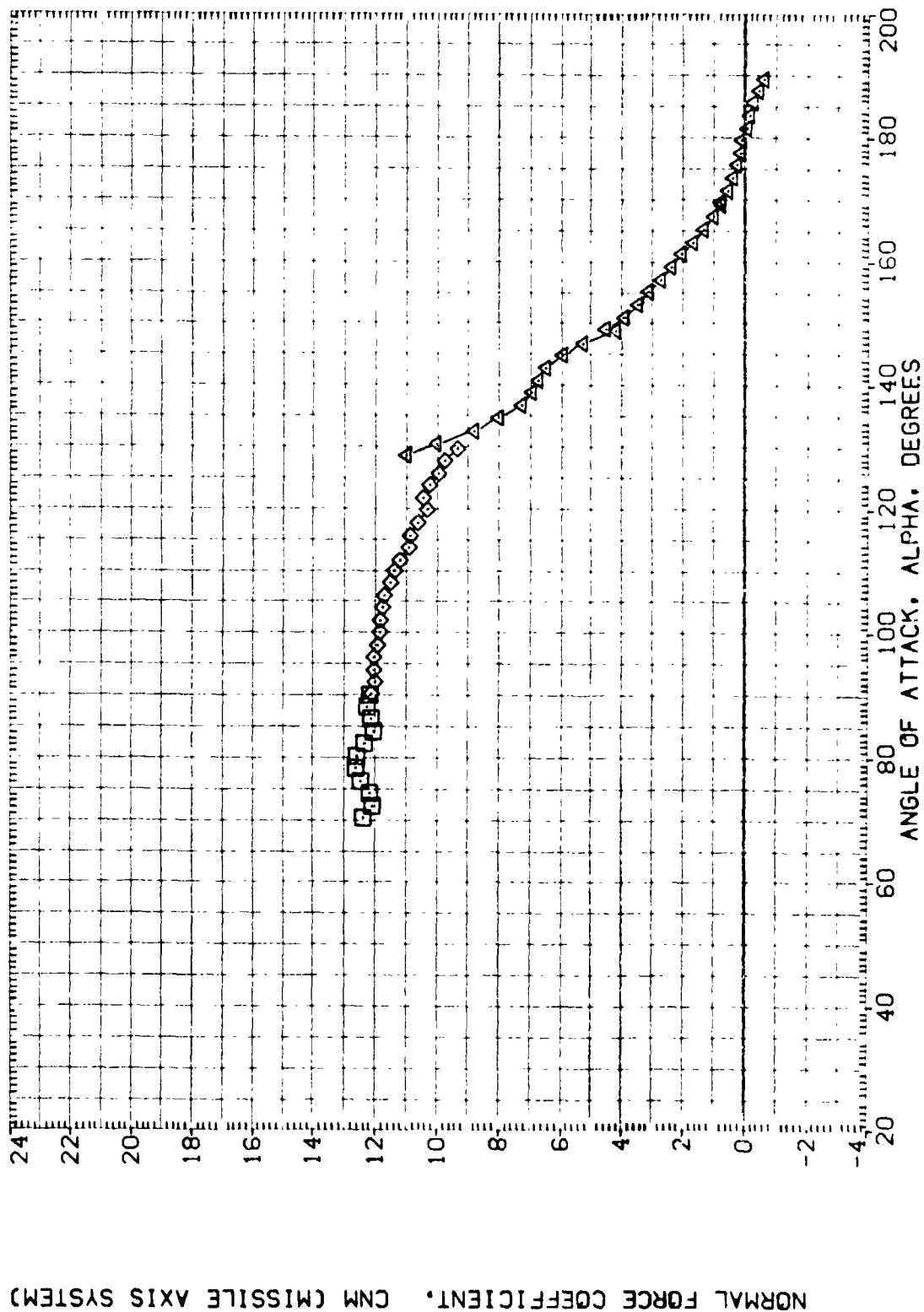


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\Phi = 0$ )

[A]MACH = .40

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REFERENCE INFORMATION

SREF	50.30	IN.
LREF	.6000	IN.
BREF	.6000	IN.
XRRP	5.7210	IN.
YRRP	.0000	IN.
ZRRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000

DATA SET SYMBOL

(A1H003)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(A1H026)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

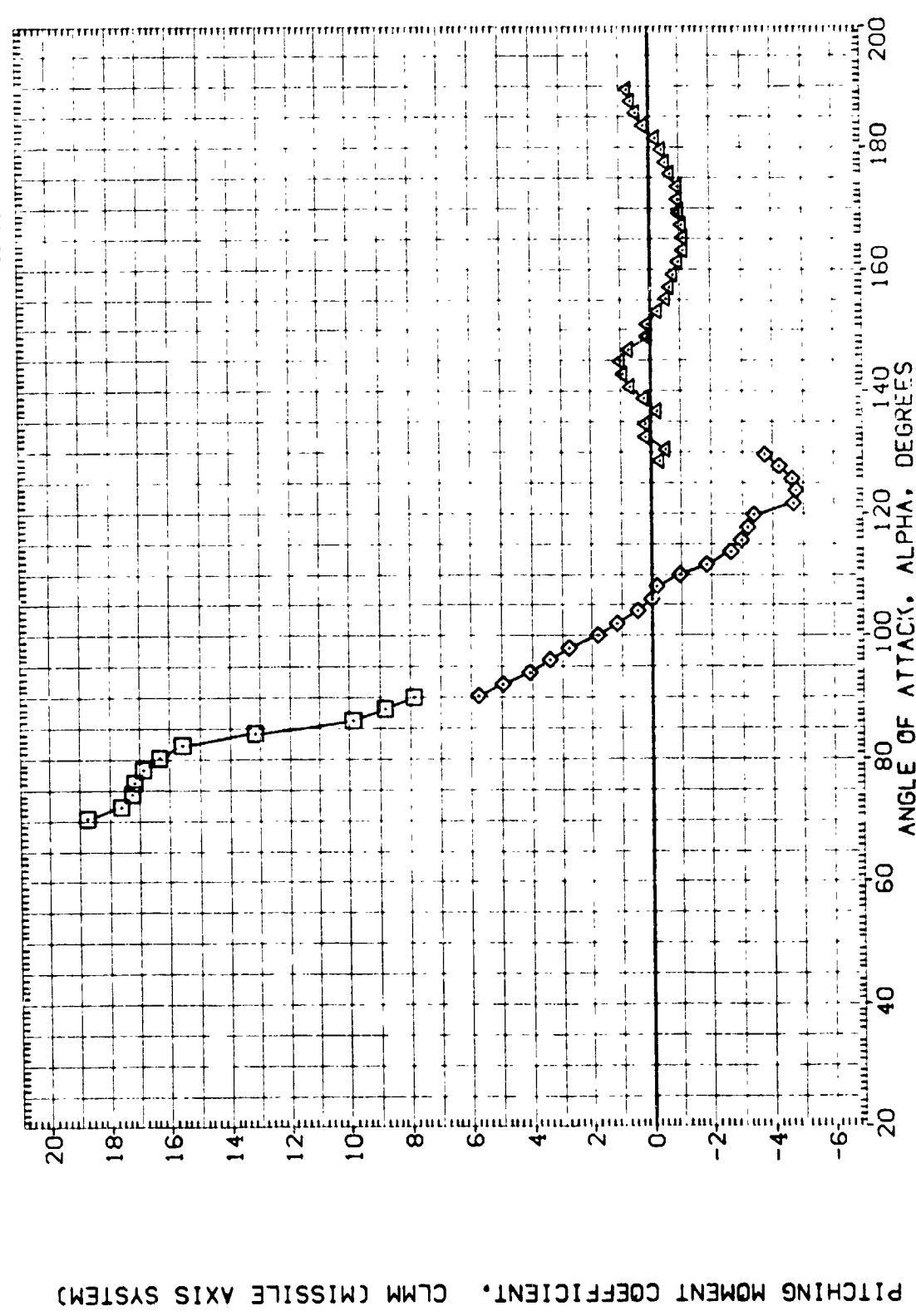


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

==

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	S-41	REFERENCE INFORMATION
(AIHQ03)	DATA NOT AVAILABLE	.000	SREF .5030 SQ. IN.
(AIHQ26)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(AIHQ03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(AIHQ03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0030 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

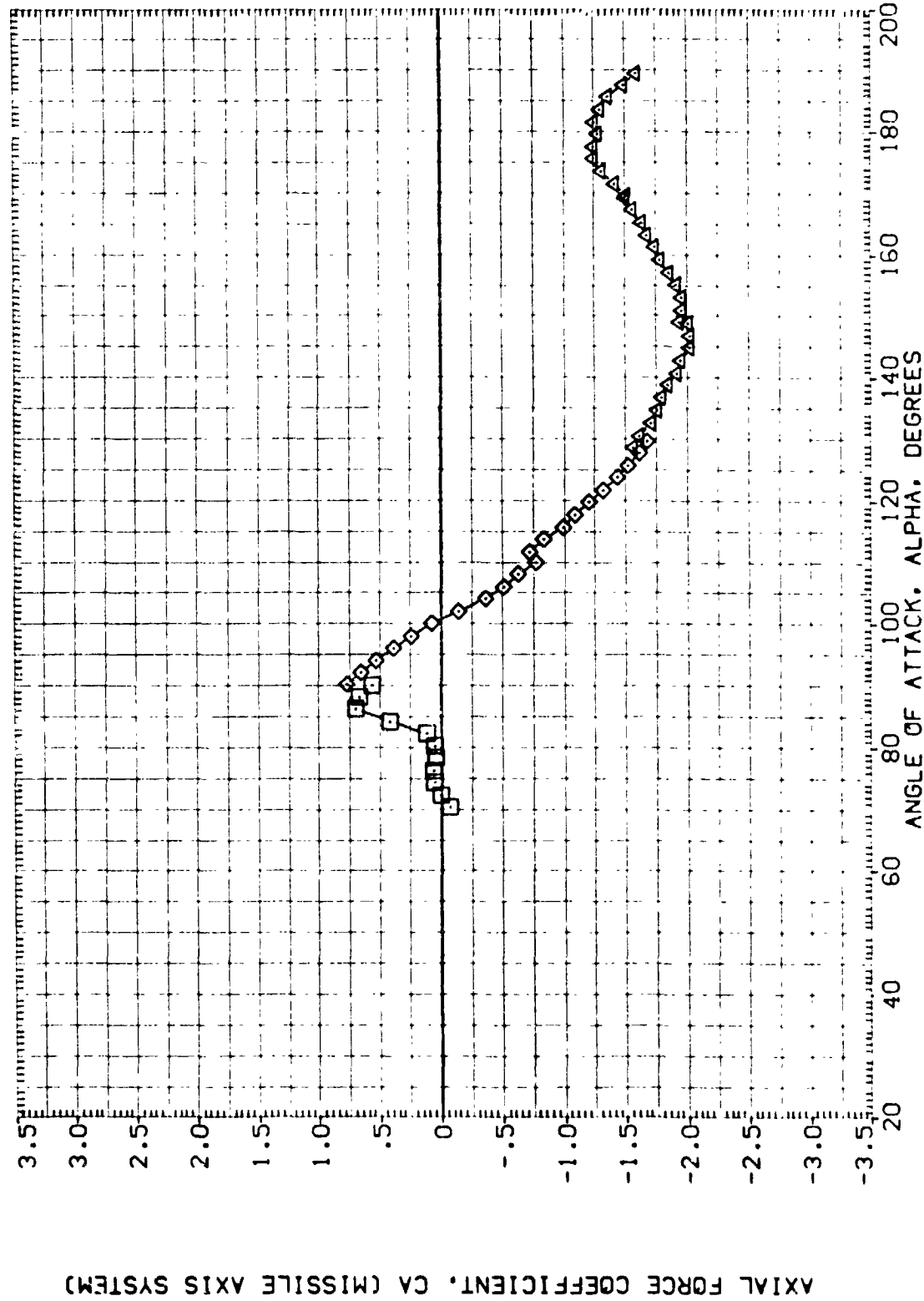


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\Phi = 0$ )

(MACH = .40)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(AIHQ03)      DATA NOT AVAILABLE      .000      SREF      .5030      IN.

(AIHQ26)      MSFC TVTSD4 (SABF)      .000      LREF      .8000      IN.

(AIHQ03)      MSFC TVTSD4 (SABF)      .000      BRPF      .8000      IN.

(AIHQ03)      MSFC TVTSD4 (SABF)      .000      XMRP      .7210      IN.

(AIHQ03)      MSFC TVTSD4 (SABF)      .000      YMRP      .0000      IN.

(AIHQ03)      MSFC TVTSD4 (SABF)      .000      ZMRP      .0000      IN.

(AIHQ03)      MSFC TVTSD4 (SABF)      .000      SCALE      .0055

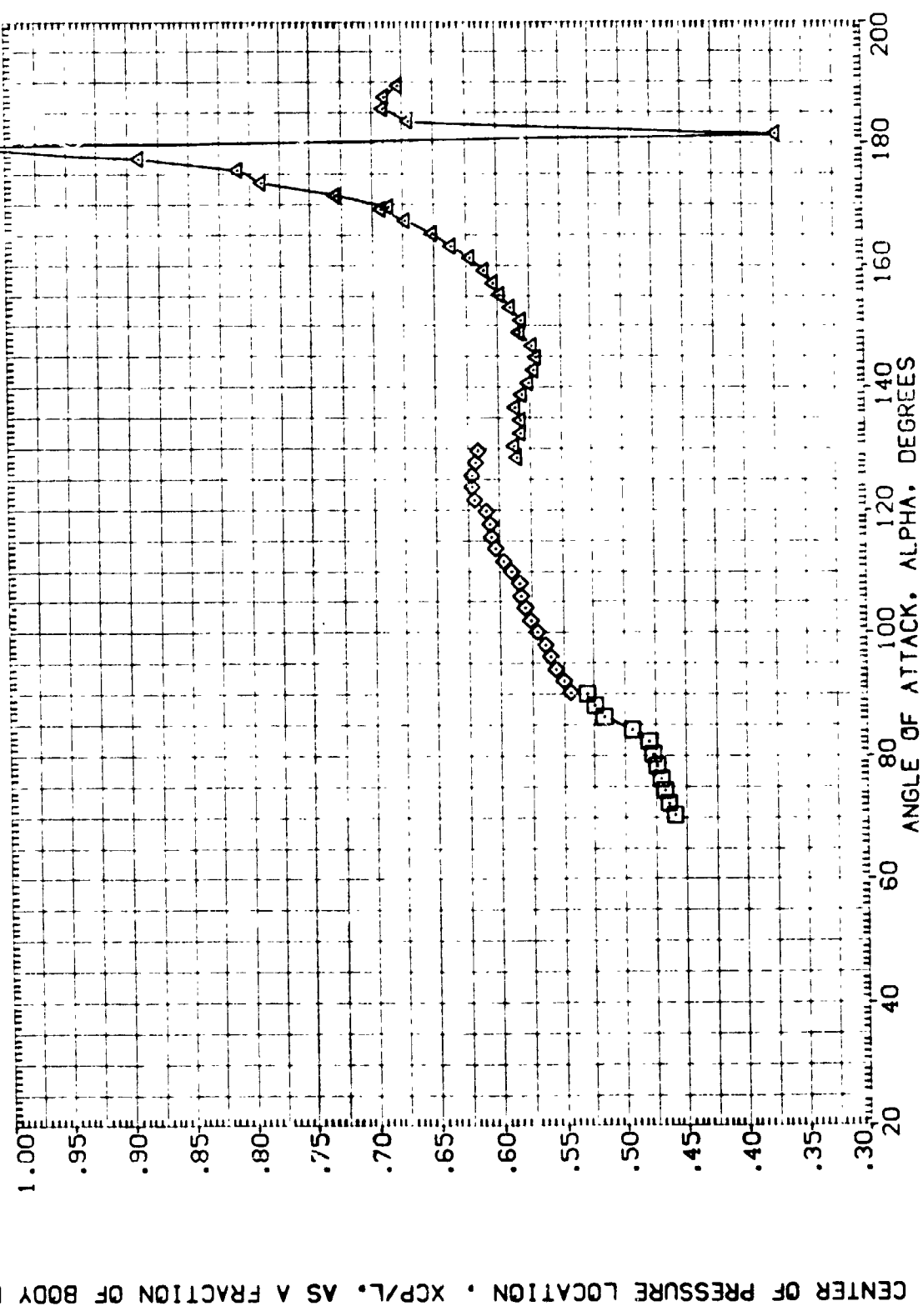


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 0)

(A)MACH = .40

DATA SET SYMBOL	CONF:GURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5C30 SQ. IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8C00 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8C00 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

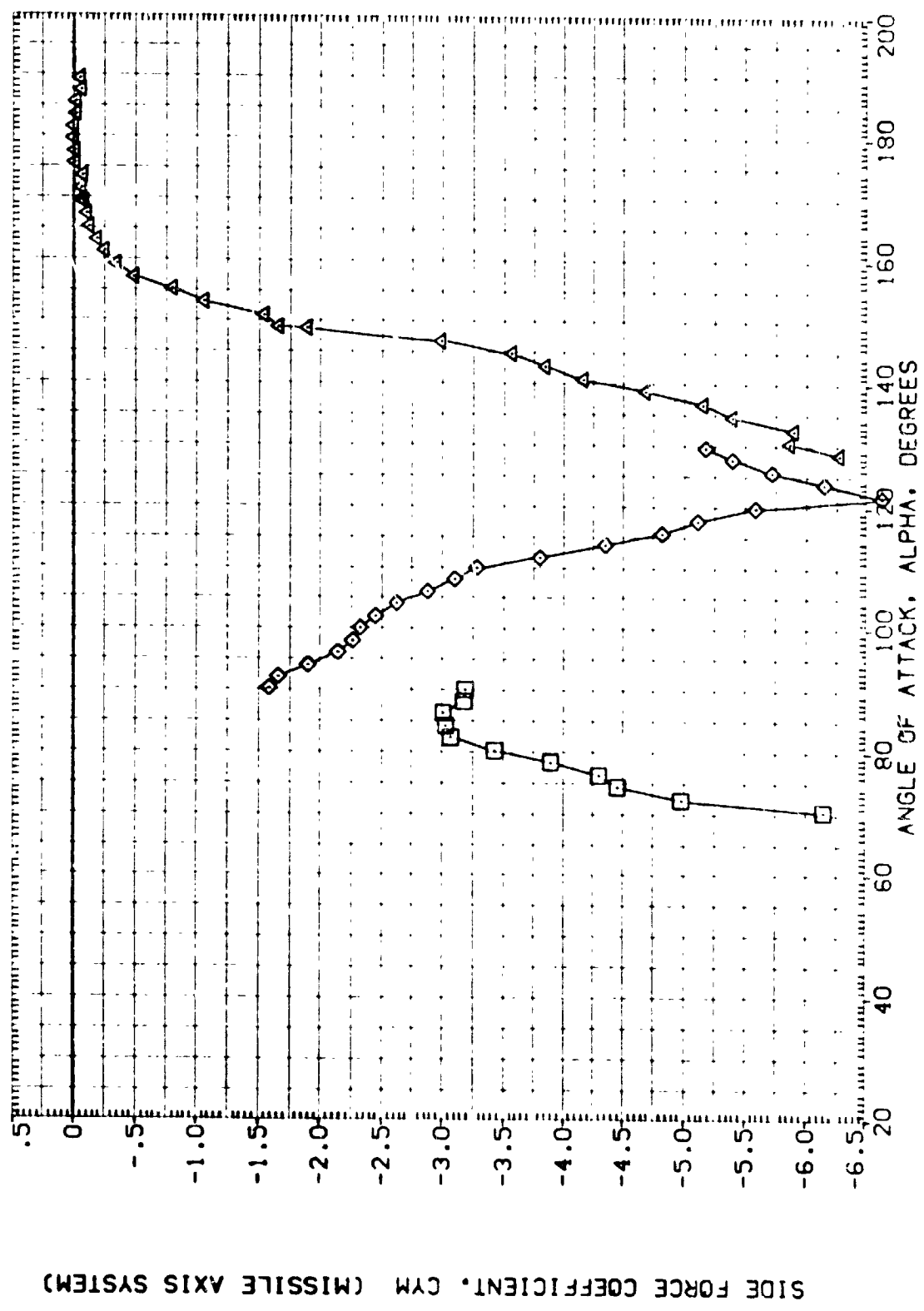


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE IN JUNCTION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8003 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8003 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XREF 5.7213 IN.
			YREF .0003 IN.
			ZREF .0003 IN.
			SCALE .0055

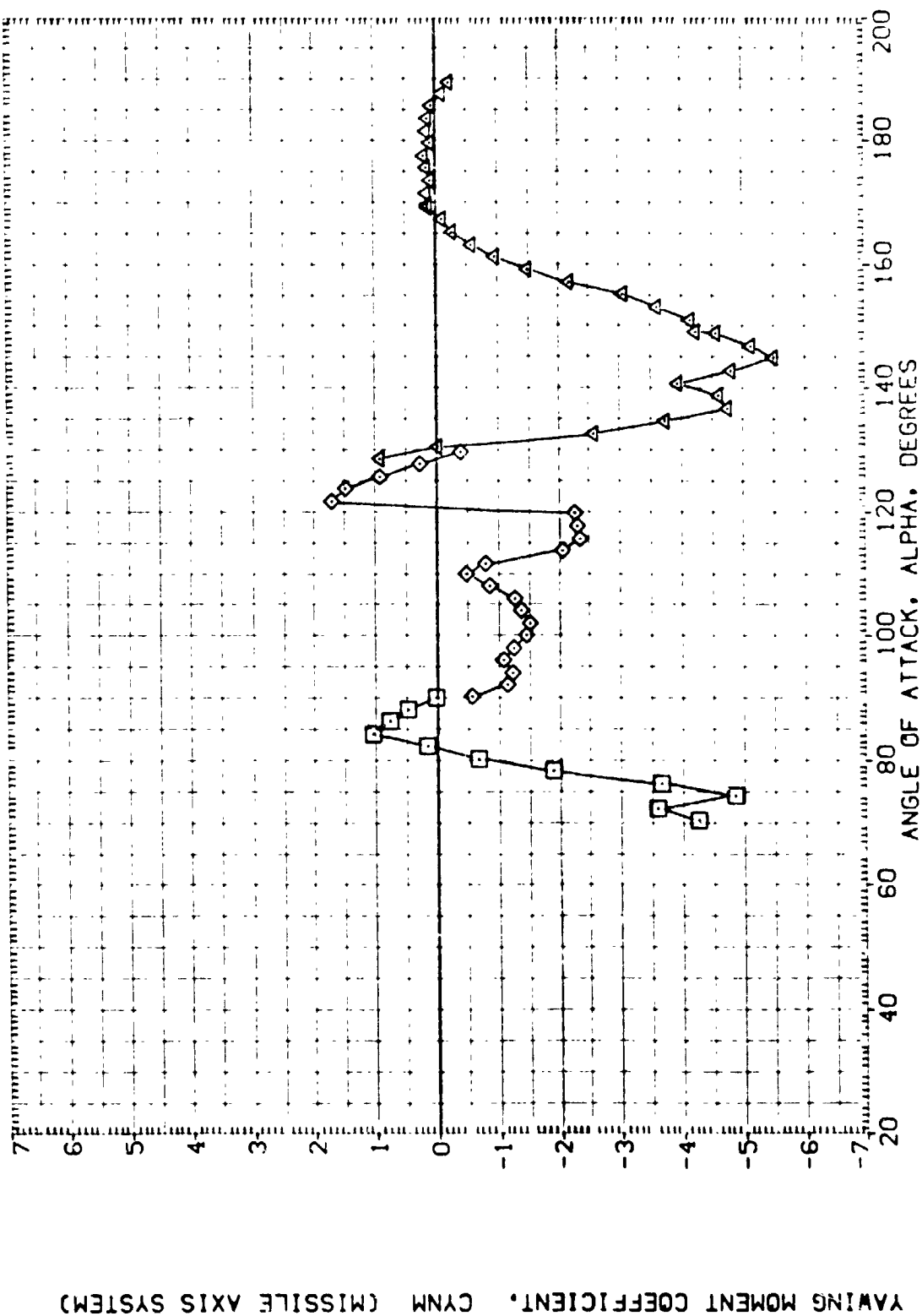


FIGURE 19. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 0)

(A)MACH = .40

DATA SET SYMBOL: (AIH003) (AIH026) (AIH003) (AIH003)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI: .000 .000 .000 .000

REFERENCE INFORMATION: SREF .5030 SQ. IN. LREF .8000 IN. BREF .8000 IN. XREF 5.7210 IN. YREF .0000 IN. ZREF .0000 IN. SCALE .0055

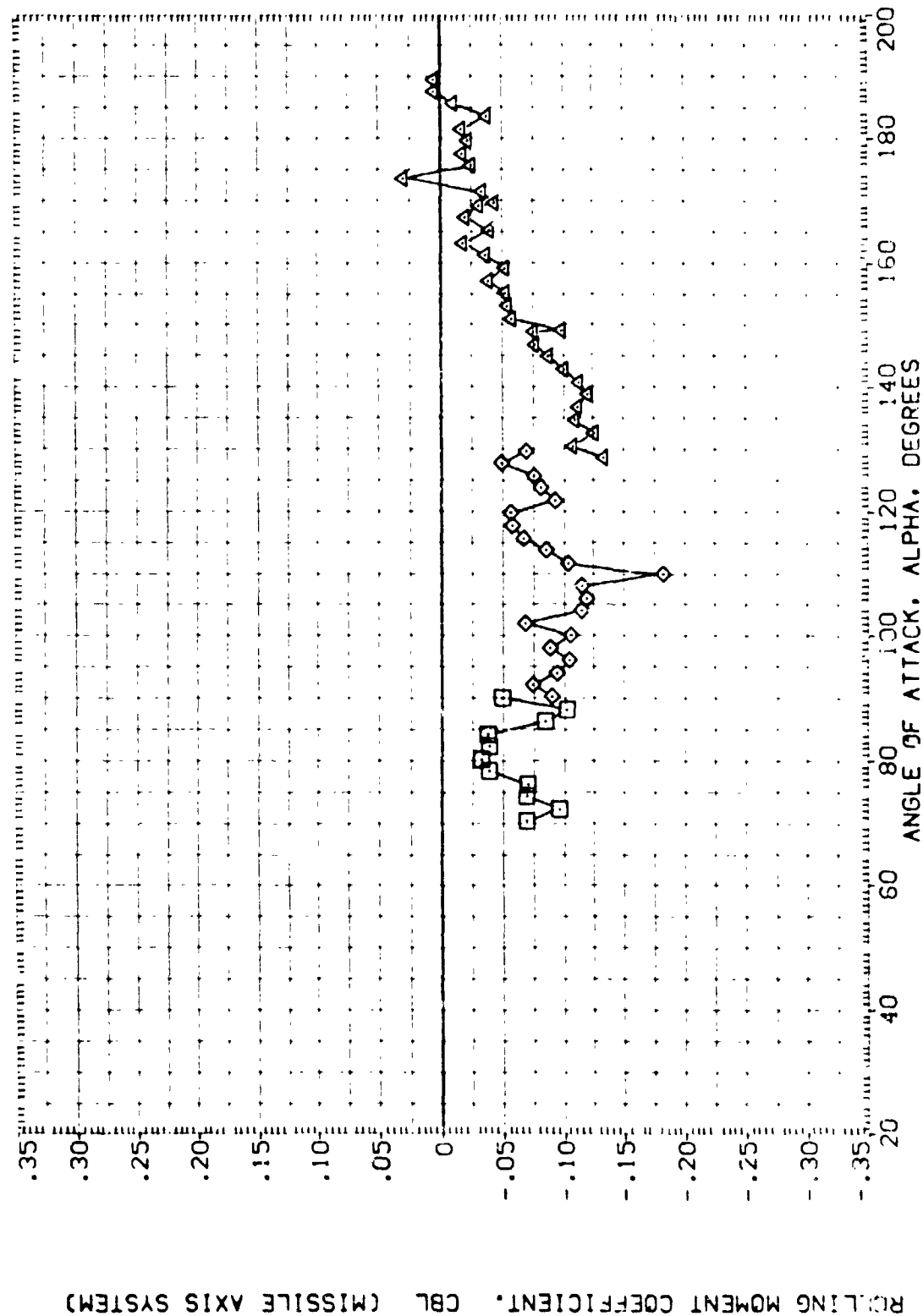


FIGURE 19. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 0)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(AIHQ03)    DATA NOT AVAILABLE    .000    SREF    5030    SQ. IN.

(AIHQ06)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    LREF    8000    IN.

(AIHQ03)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    BREF    8000    IN.

(AIHQ03)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    XTRP    5.7210    IN.    XS

(AIHQ03)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    YMRP    .0000    IN.    YS

(AIHQ03)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    ZMRP    .0000    IN.    ZS

(AIHQ03)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000    SCALE    .0055

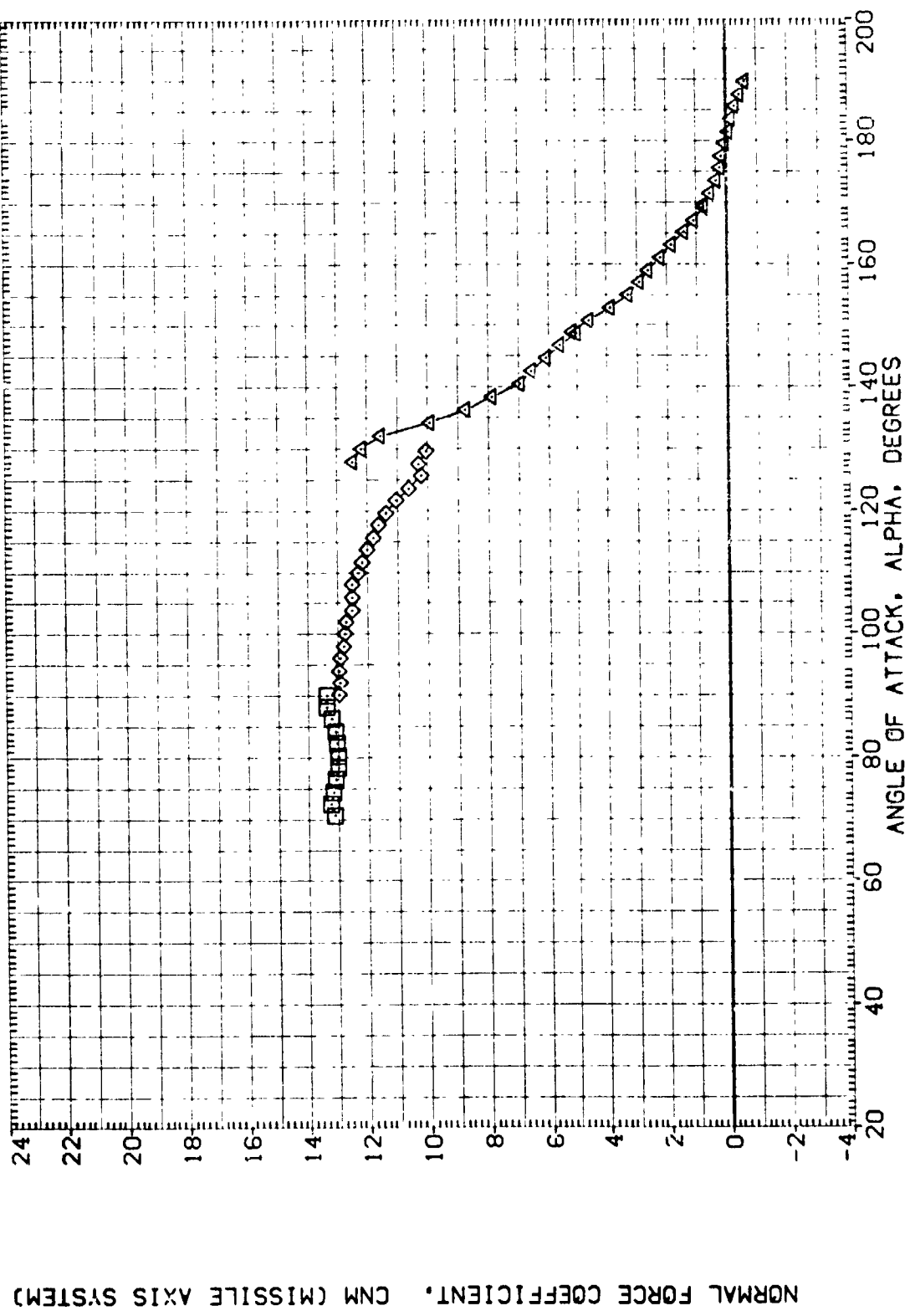


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 0)

(MACH = .60)

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A1H026)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN.
				ZMRP .0000 IN.
				SCALE .0055

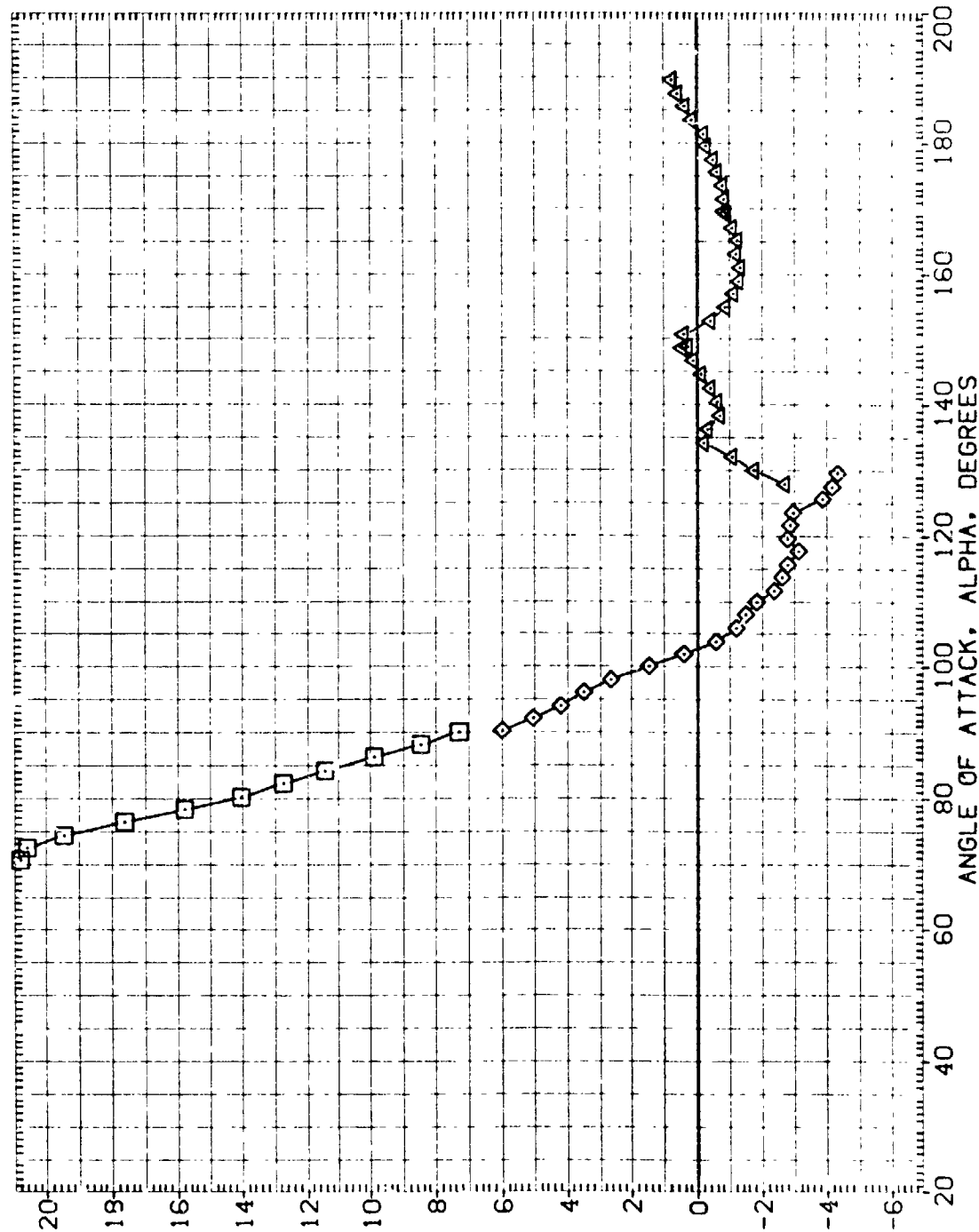


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(B) MACH = .60



AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 0)

(B)MACH = .60

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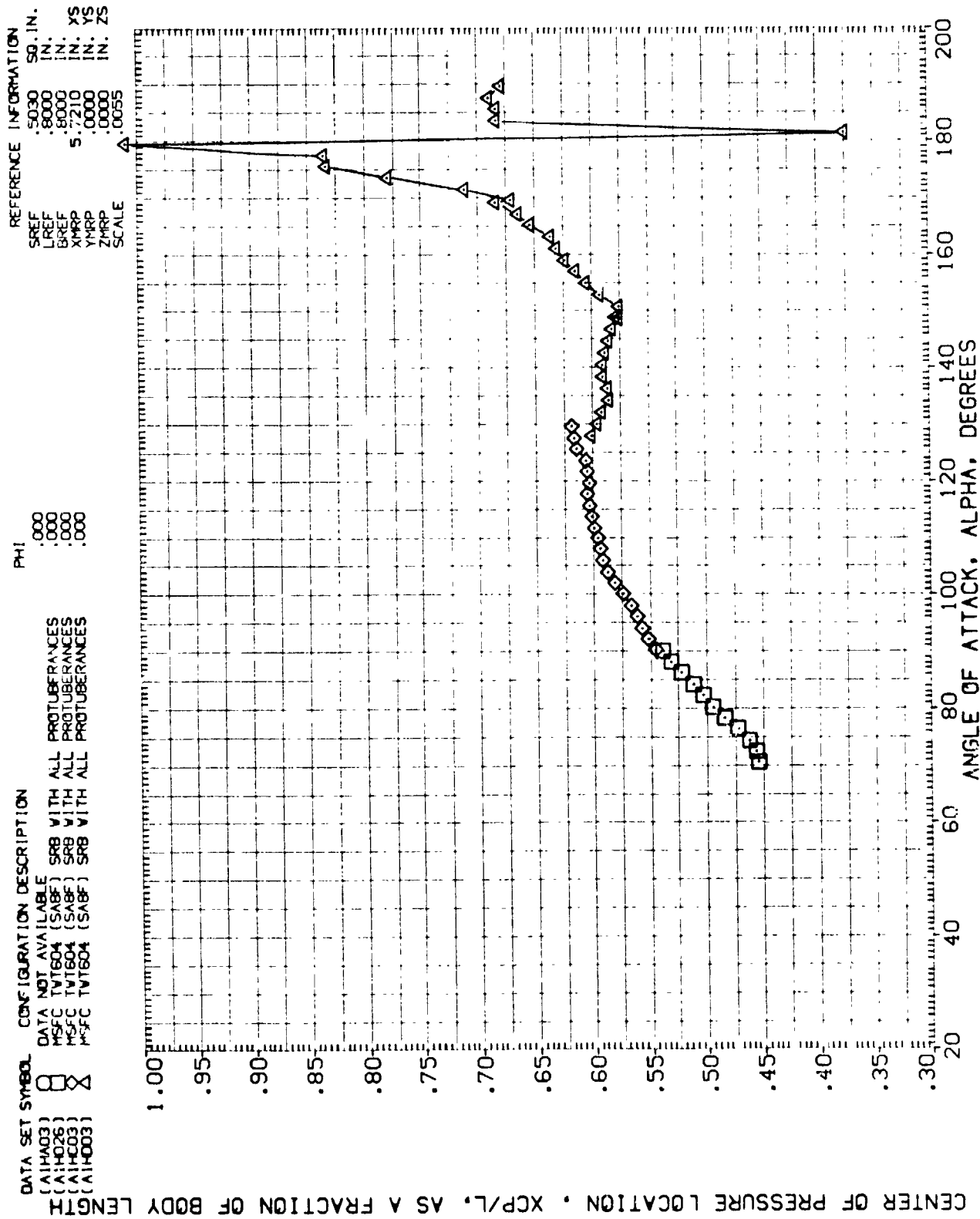
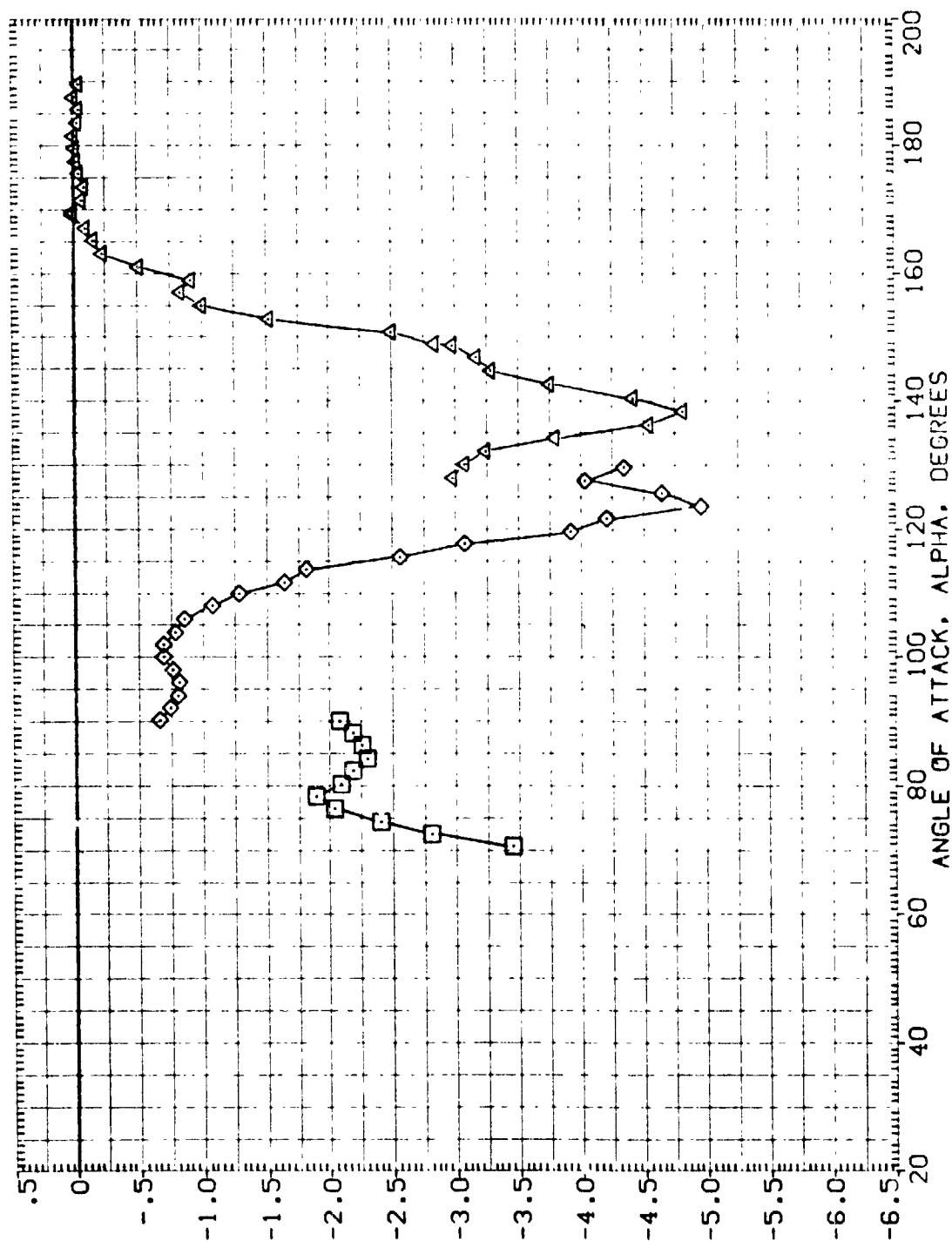


FIGURE 19. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 0)

(B)MACH = .60

REFERENCE INFORMATION	
SREF	.5030
REF	.5000
BREF	.8000
XRPR	5.7210
YMRP	.0000
ZMRP	.0000
SCALE	.0055



PAGE: 96

$$(8) \text{MACH} = .60$$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, CYNM (MISSILE AXIS SYSTEM)

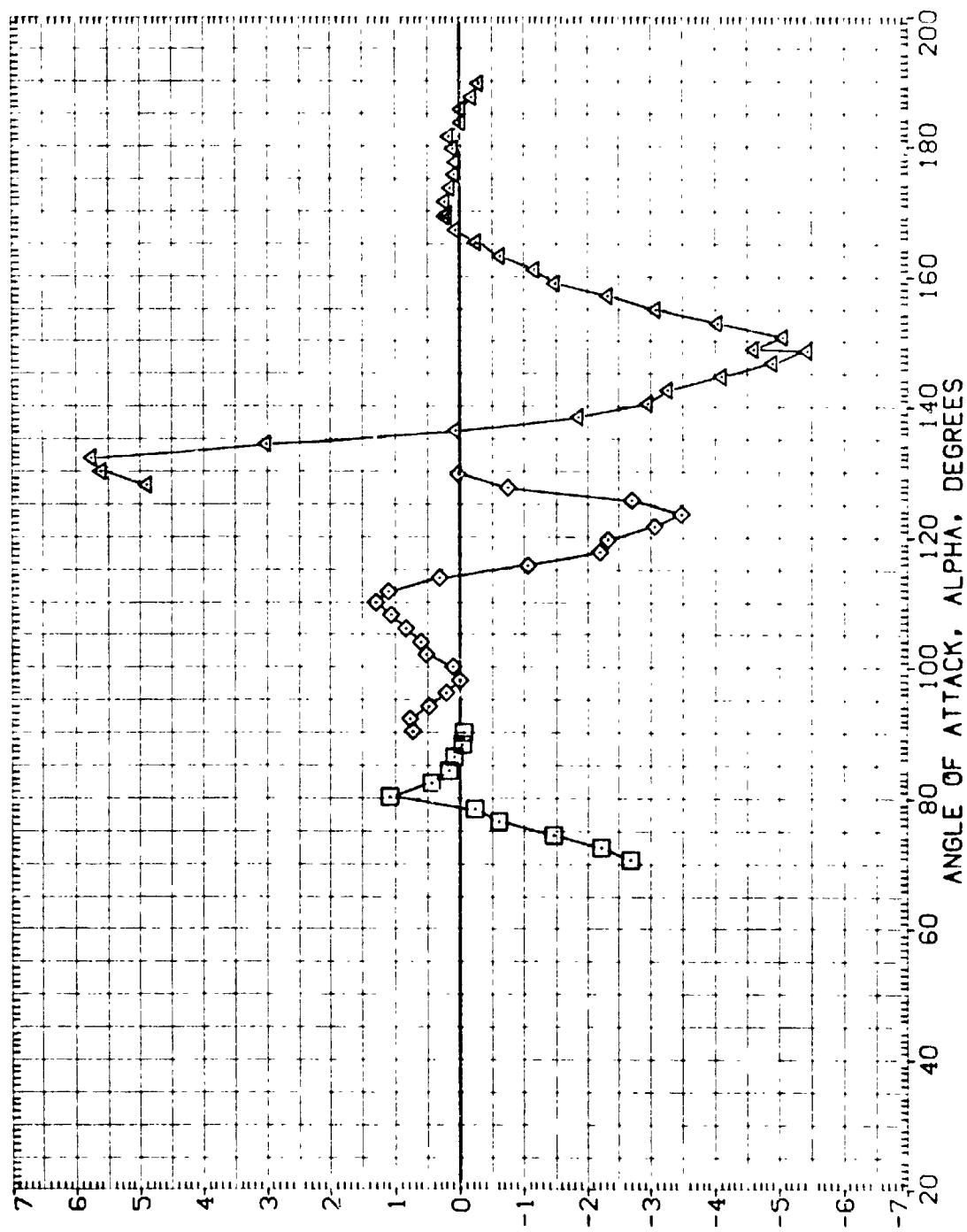


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 0)

(B)MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(AIHQ03)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES

(AIHQ26)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(AIHQ03)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(AIHQ03)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

PHI .000  
 .000  
 .000  
 .000

REFERENCE INFORMATION

SREF .5030 IN. SQ. IN.

LREF .8000 IN. IN.

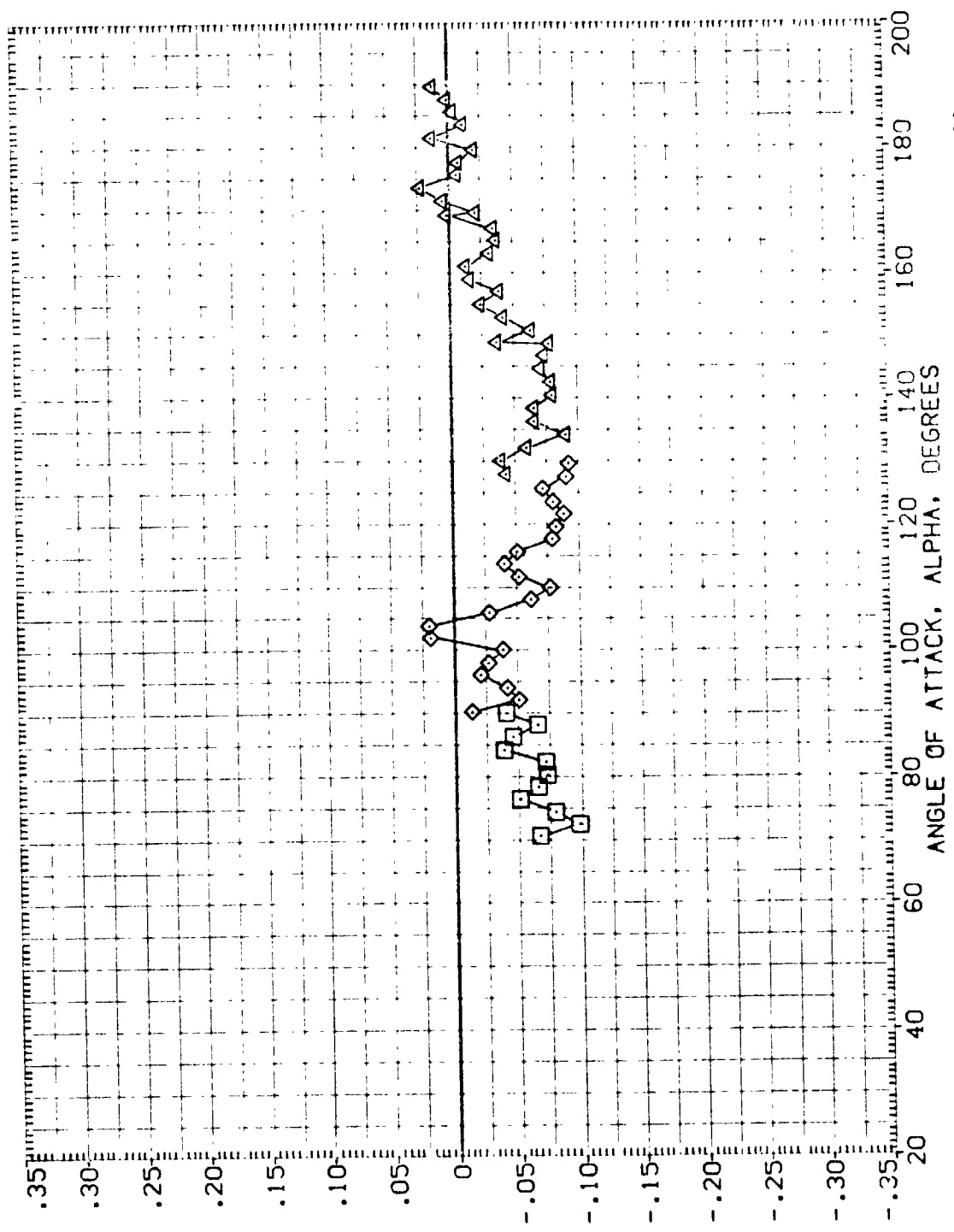
BREF .8000 IN. IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055



ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(B)MACH = .60

REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (AIHQ03) DATA NOT AVAILABLE  
 (AIHQ06) MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIHQ03) MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIHQ03) MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES

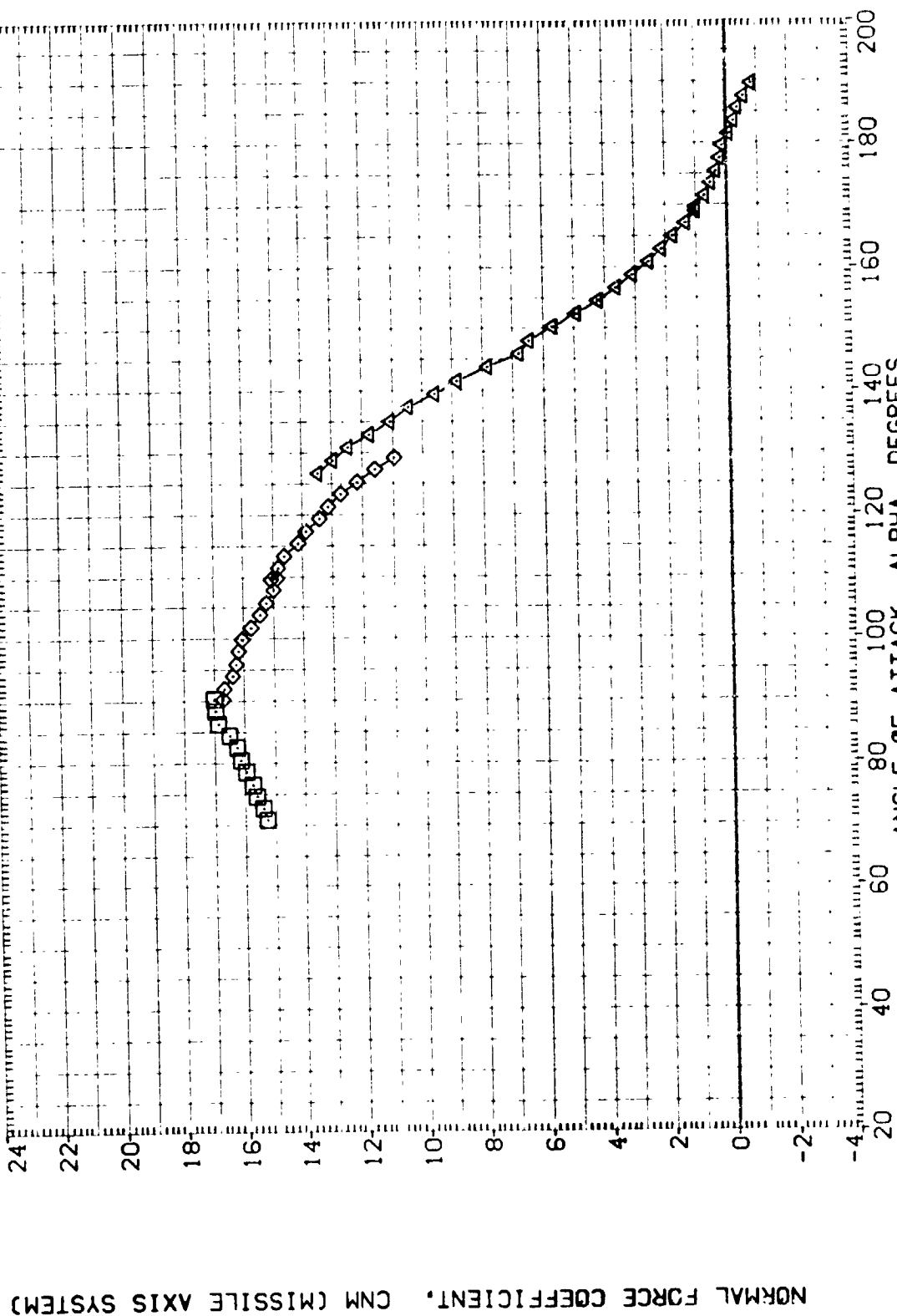


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = .30

REFERENCE INFORMATION  
 SREF 50.30 SQ. IN.  
 LREF .2000 IN.  
 BREF .0070 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000  
 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A)HA03 DATA NOT AVAILABLE SRB WITH ALL PROTUBERANCES  
 (A)H026 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A)H003 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A)H003 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

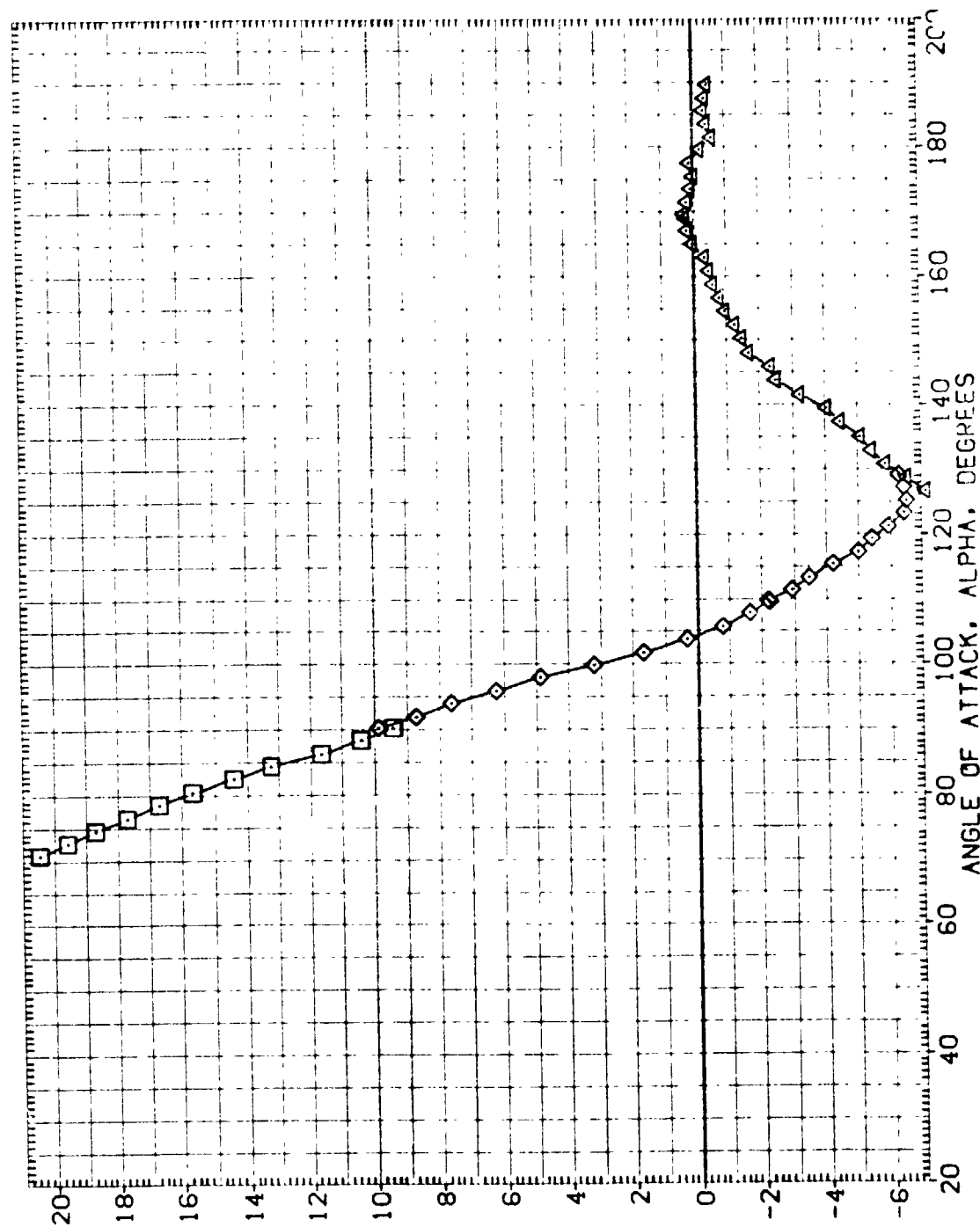


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = .90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H003)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	.000		SREF	50.30 IN.
(A1H026)	□	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		LREF	8000 IN.
(A1H003)	□	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		BREF	8000 IN.
(A1H003)	□	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		XMRP	5.7210 IN.
						YMRP	.0000 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

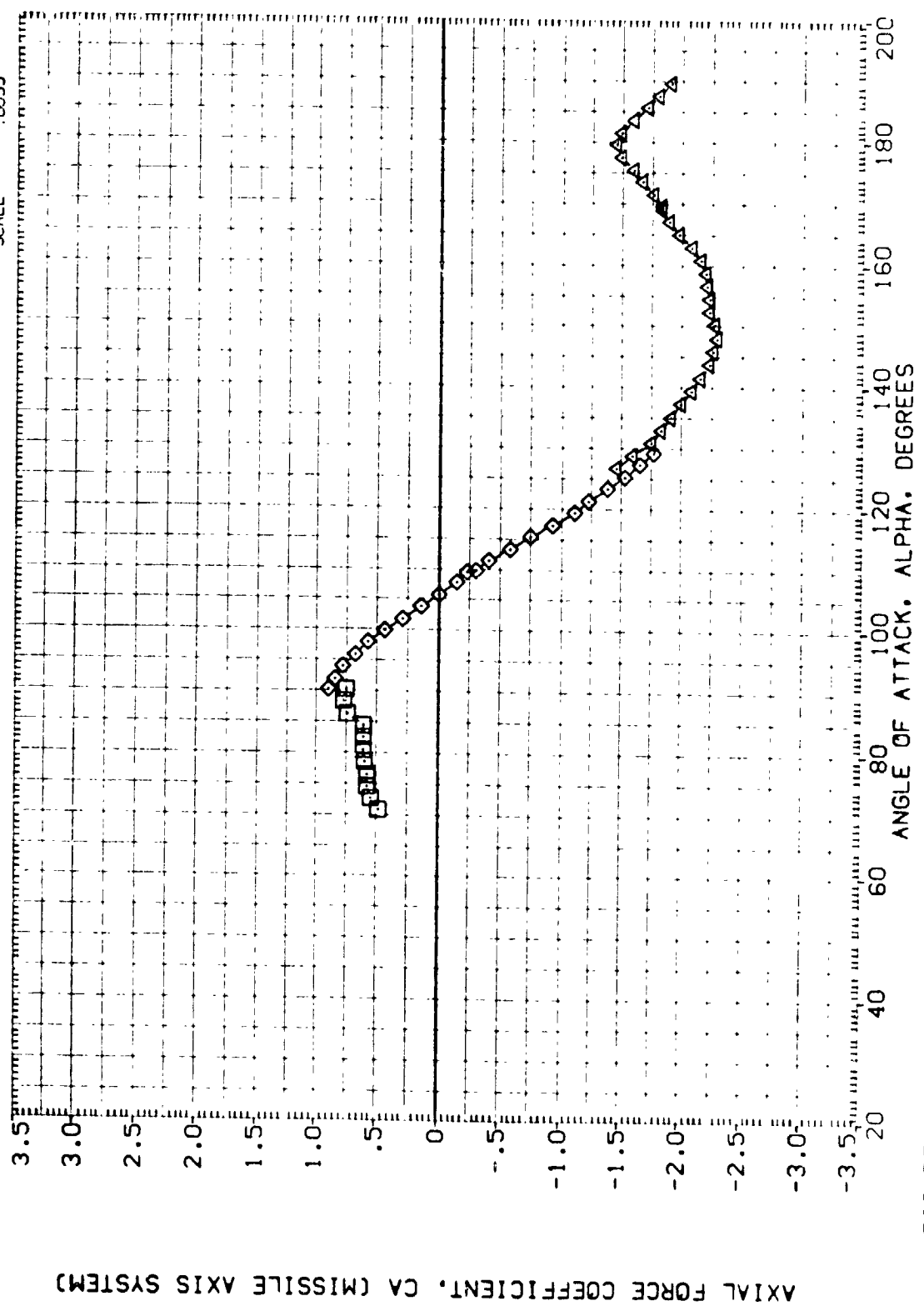


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = .90



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H003)      DATA NOT AVAILABLE      .000      SREF      50.00      IN.

(A1H026)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      LREF      80.00      IN.

(A1H003)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      BREF      80.00      IN.

(A1H003)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      XMRP      5.72      IN.

(A1H003)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      YMRP      .0000      IN.

(A1H003)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      ZMRP      .0000      IN.

(A1H003)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      .000      SCALE      .0035

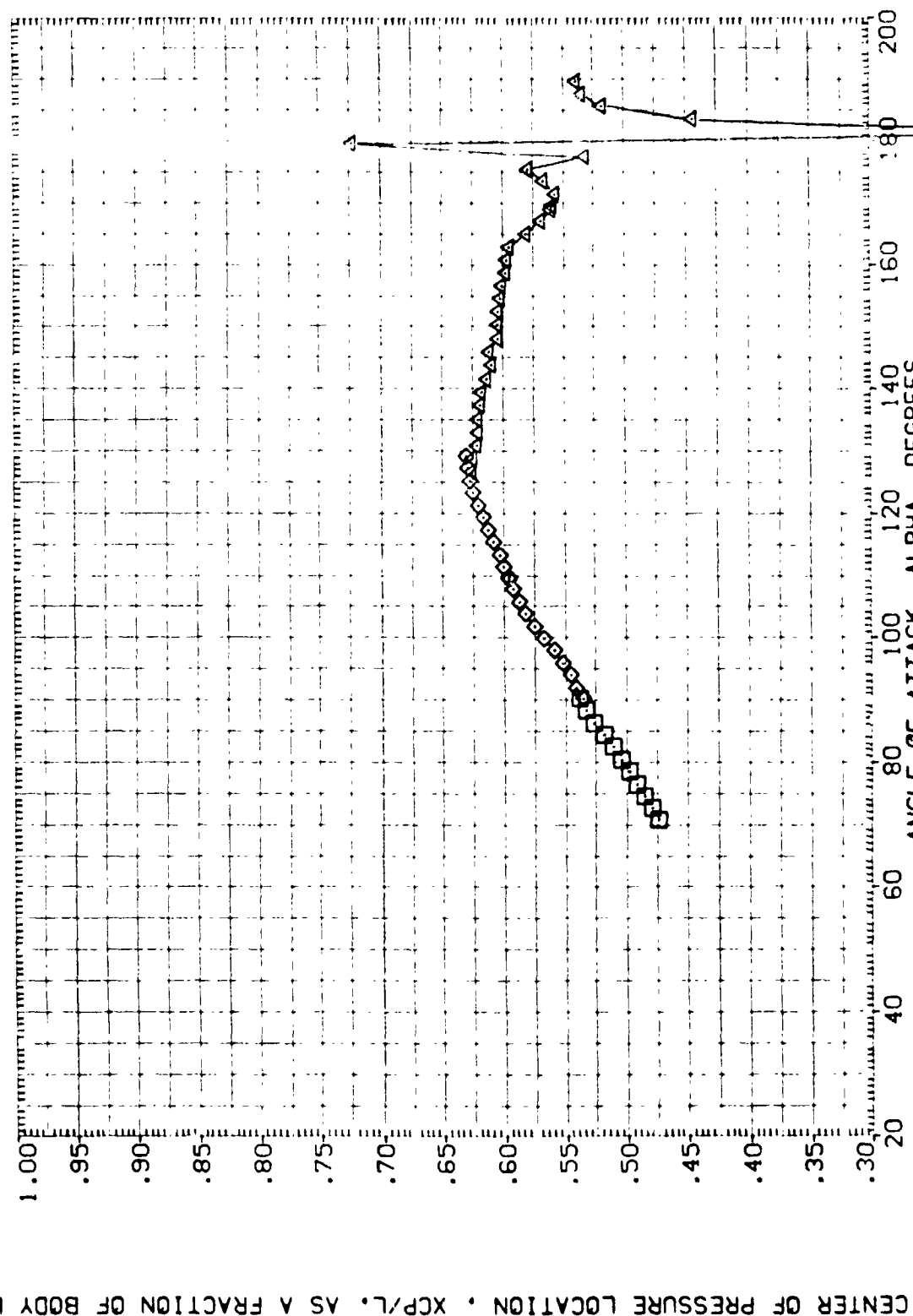


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = .90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5C30 IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8C00 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8C00 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XTRP 5.7210 IN. XS
			YTRP .0C00 IN. YS
			ZTRP .0C00 IN. ZS
			SCALE .0C55

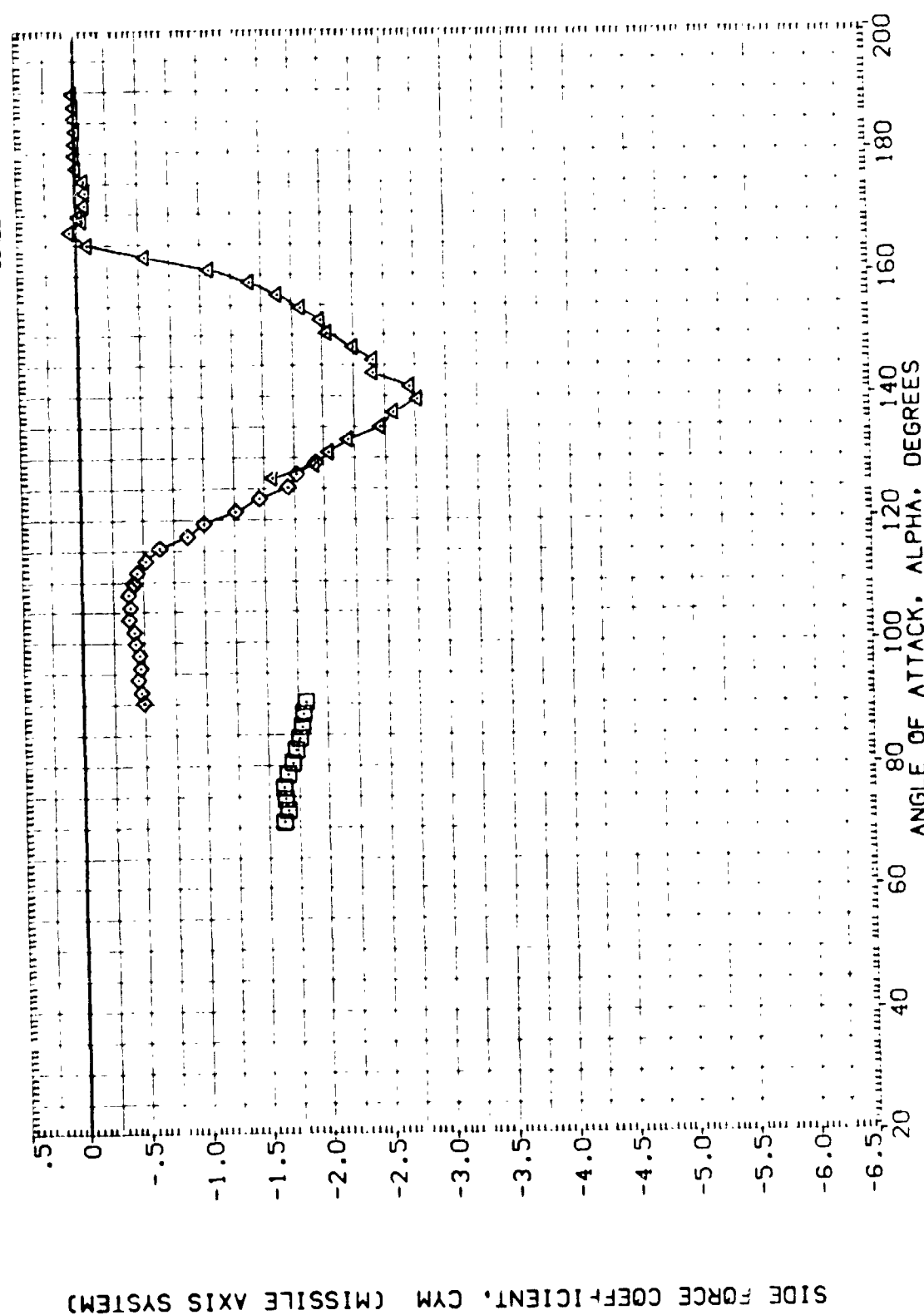


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\Phi = 0$ )

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (AIH003) DATA NOT AVAILABLE  
 (AIH026) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIH003) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIH003) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 .000  
 .000  
 .000  
 .000

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XRRP 5.7210 IN. XS  
 YRRP .0000 IN. YS  
 ZRRP .0000 IN. ZS  
 SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

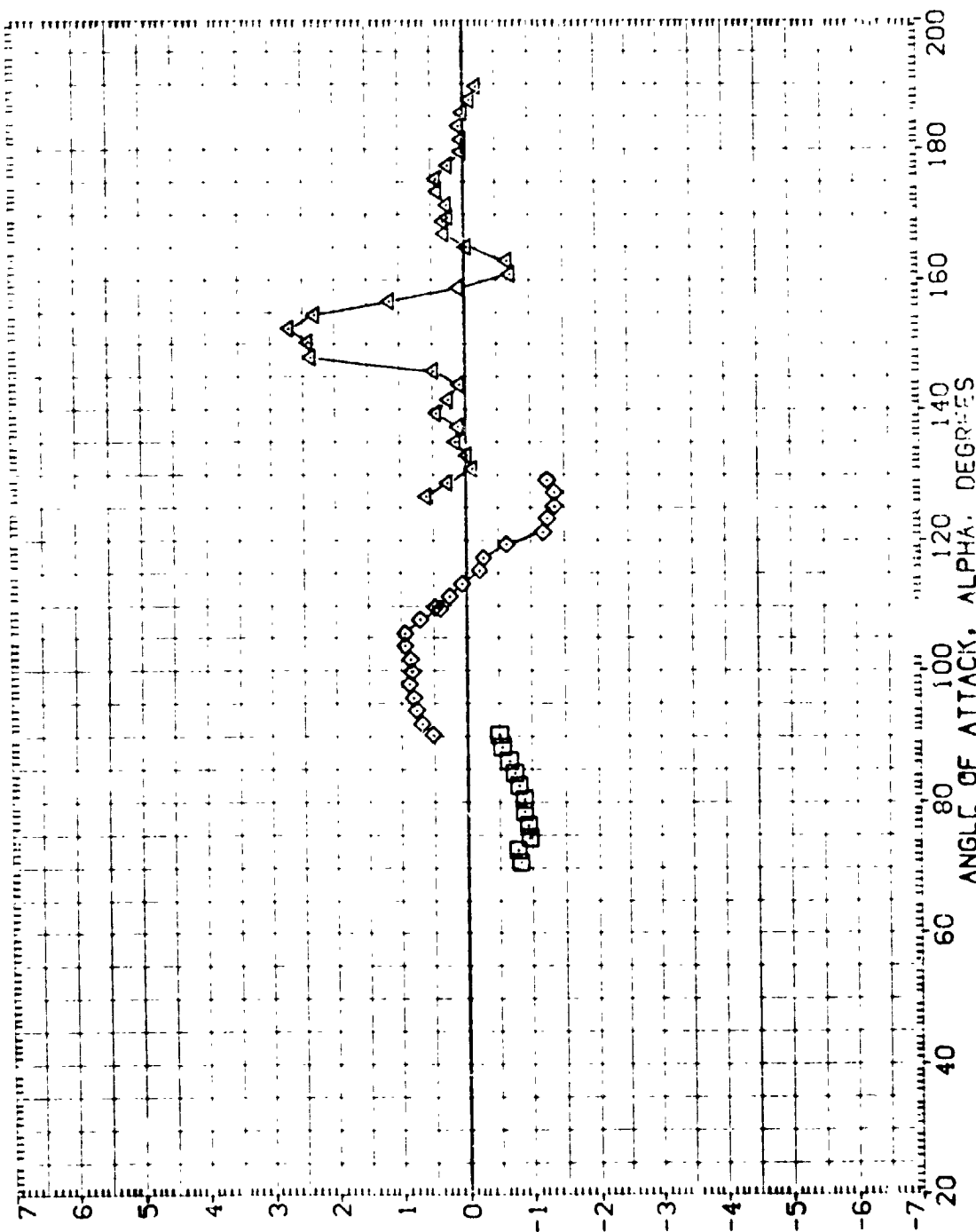


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = .90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1-H003)	DATA NOT AVAILABLE	.000	SREF 5030 SQ IN.
(A1-H026)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1-H003)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BRF .8000 IN.
(A1-H003)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

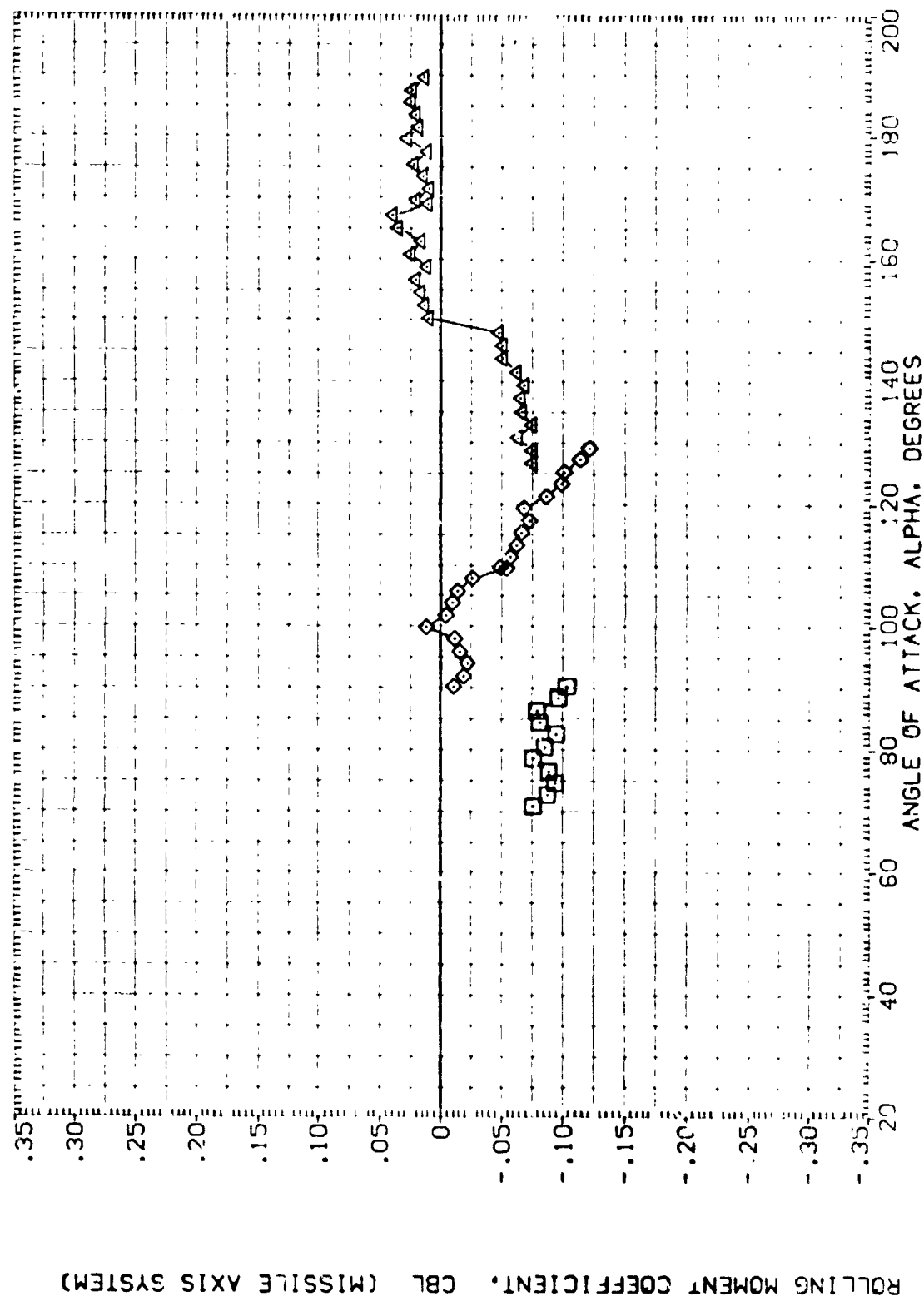


FIGURE 19. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 0)

(COMACH = .90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF 50.30 IN.
(A1H026)	MSEC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSEC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSEC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

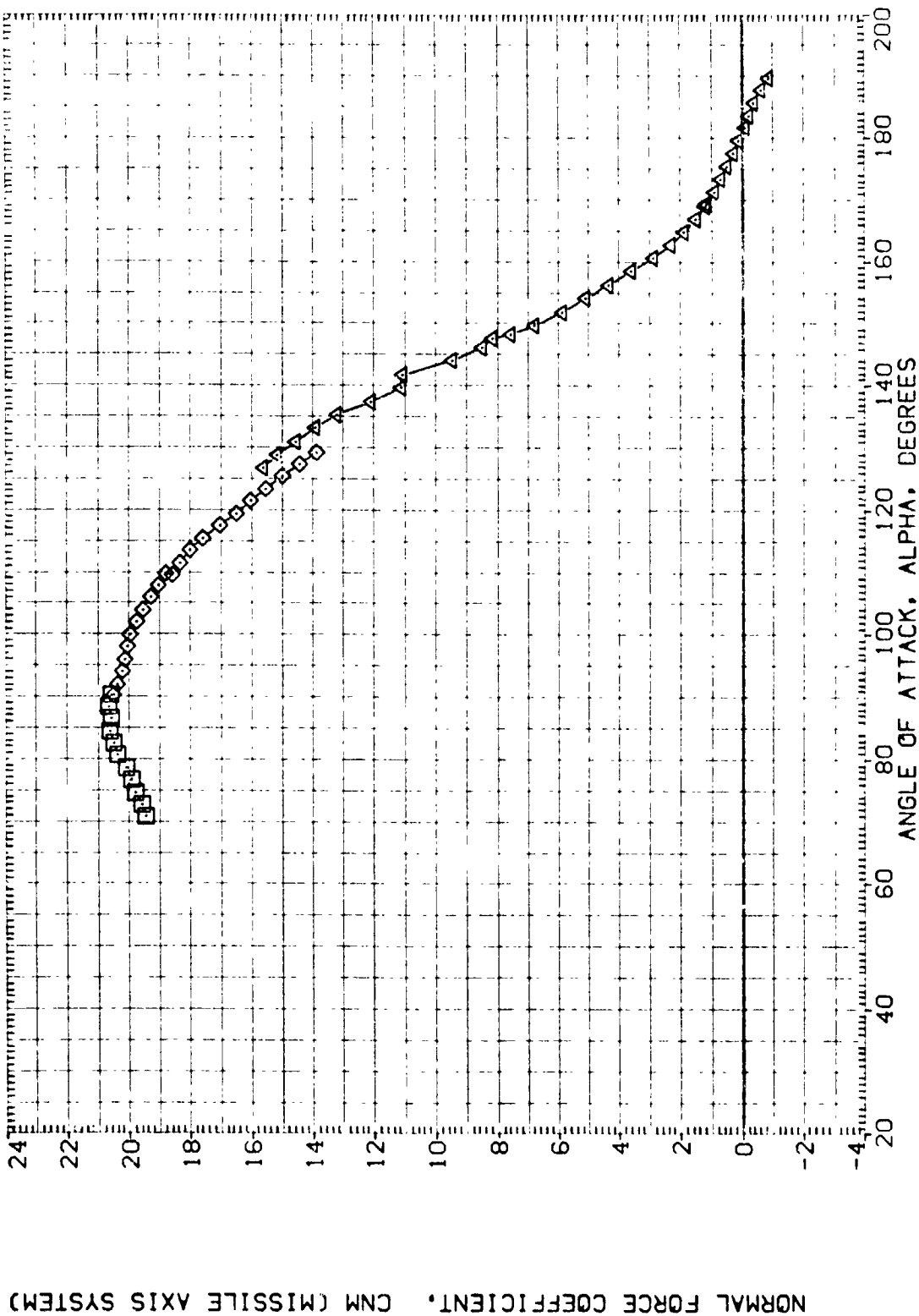


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = 1.20

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000

DATA SET SYMBOL

(A1H003)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(A1H026)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H003)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

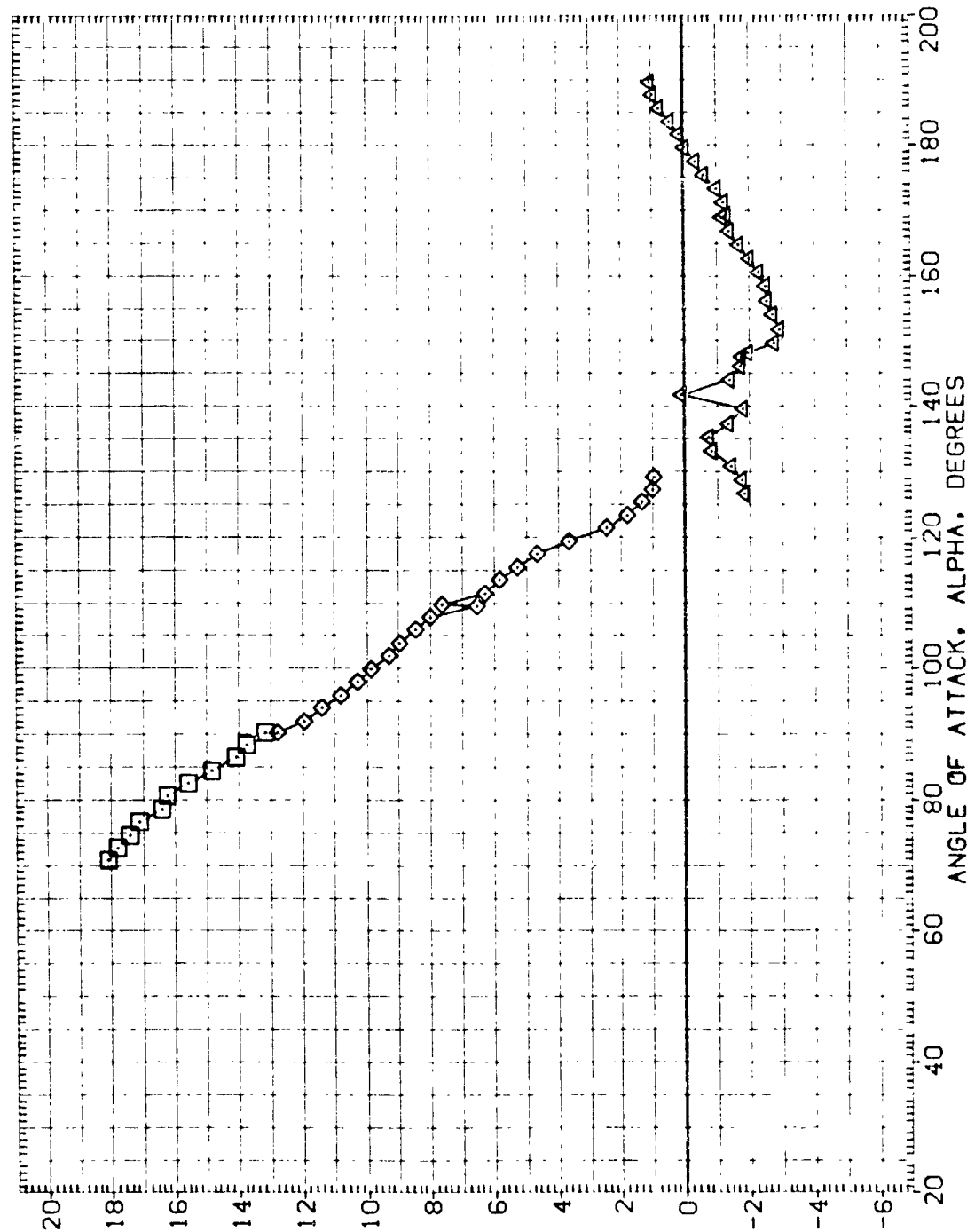


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(C)MACH = 1.20

REFERENCE INFORMATION

SR F	.5030	IN.
LR F	.8000	IN.
BR F	.8000	IN.
YMRP	5.7710	IN.
ZMRP	.0000	IN.
SCALE	.0005	

PHI

.000
.000
.000
.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(AIH003)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(AIH026)	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES
(AIH003)	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES
(AIH003)	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES

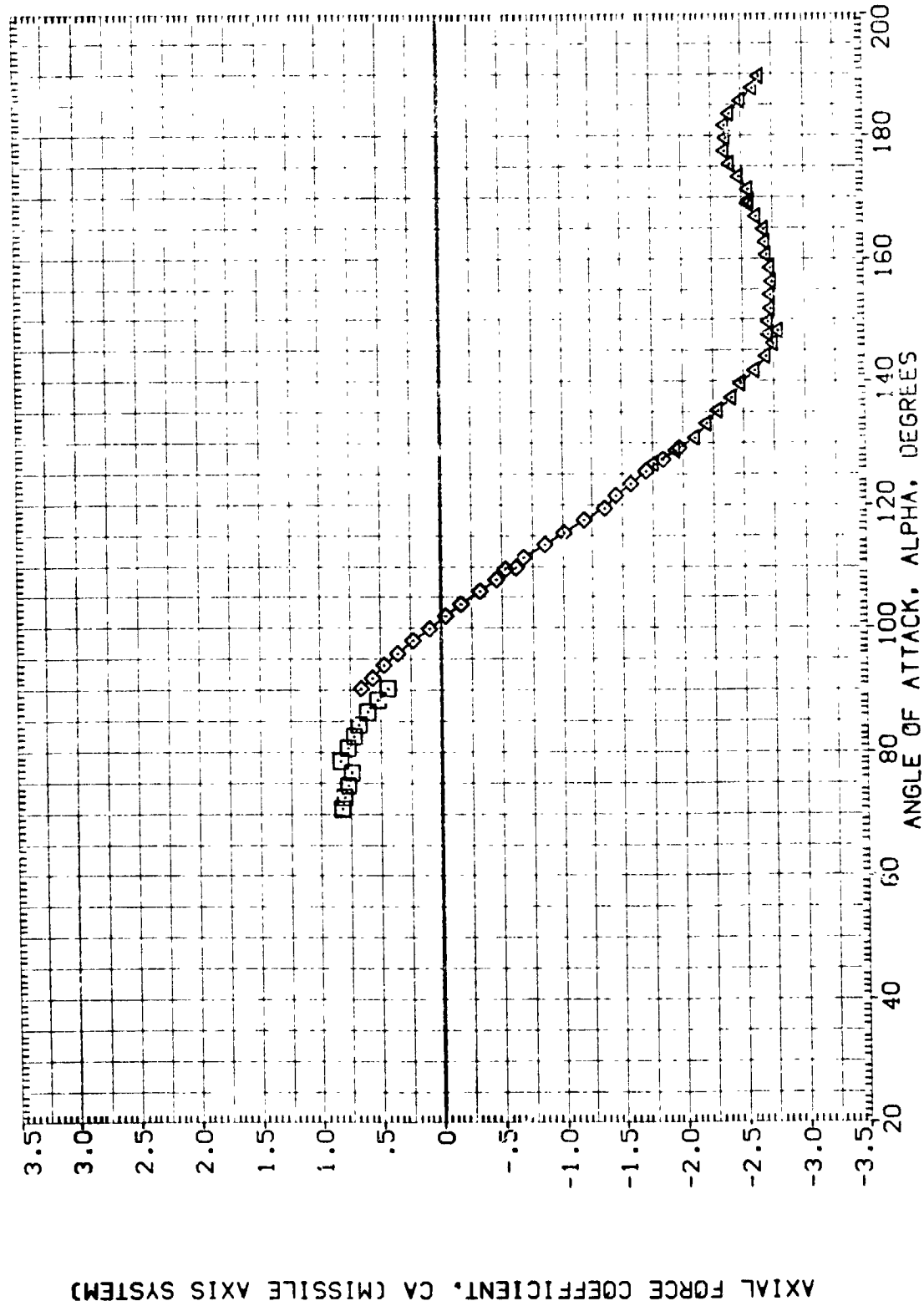


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 0)

(D)MACH = 1.20 PAGE 108

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH



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SREF	.5030	50. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XM RP	5.7210	IN. XS
YM RP	.0000	IN. YS
ZM RP	.0000	IN. ZS
SCALE	.0055	



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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 50. IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

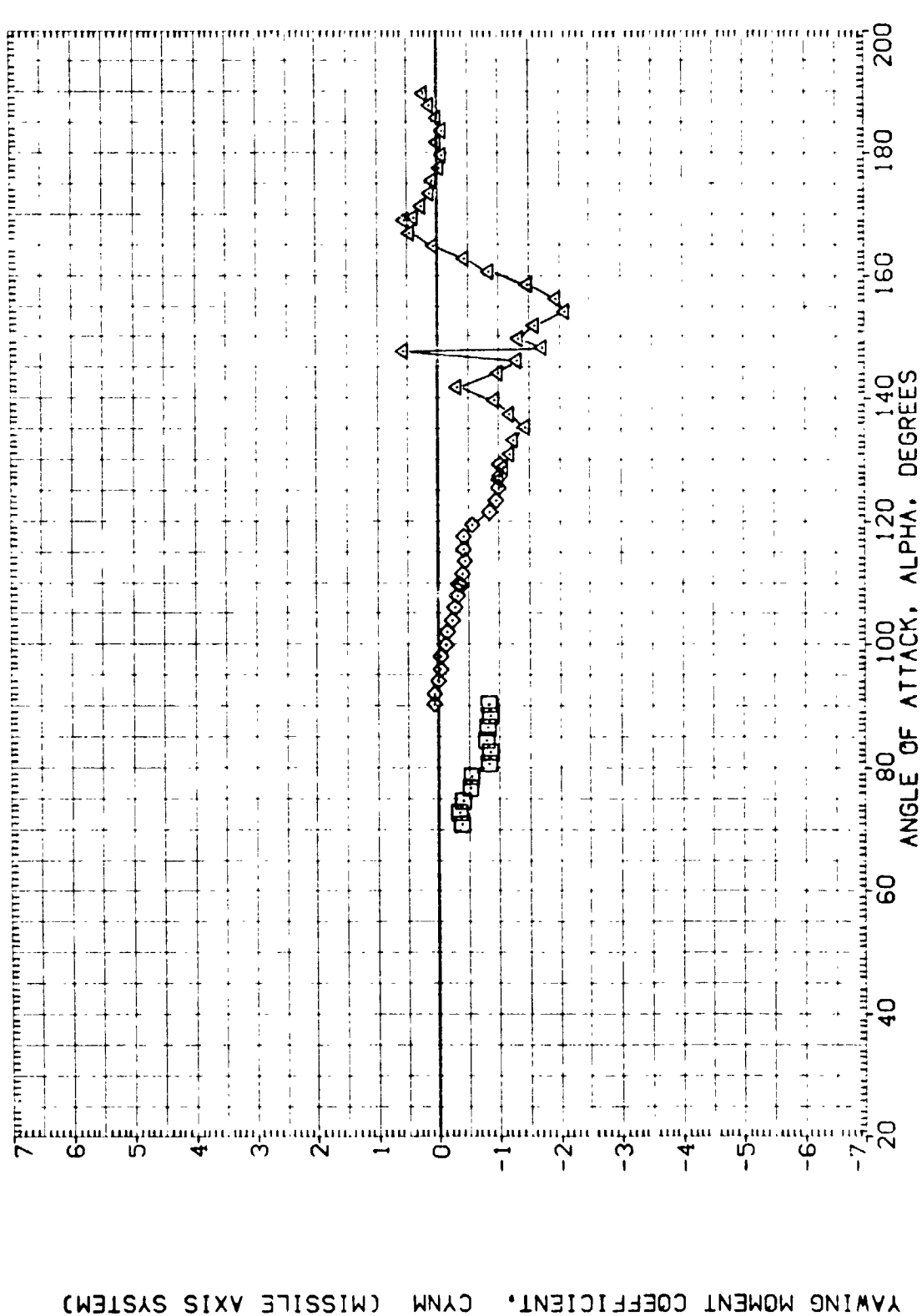


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

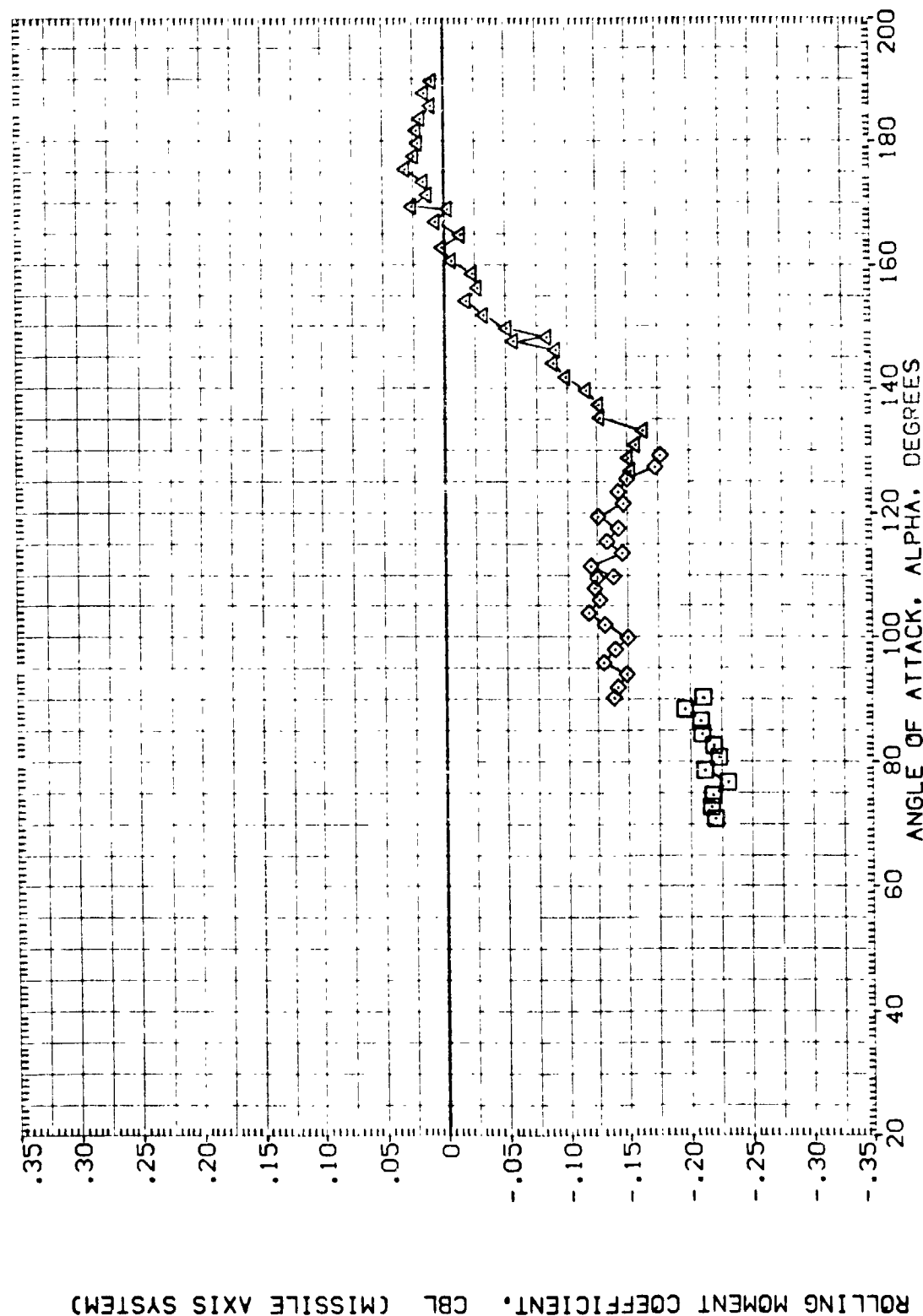
(O) MACH = 1.20

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DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(AIH003)    DATA NOT AVAILABLE    .000  
 (AIH026)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000  
 (AIH003)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000  
 (AIH003)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000

SREF    .5030    SQ. IN.  
 LREF    .8000    IN.  
 BREF    .8000    IN.  
 XMRP    5.7210    IN. XS  
 YMRP    .0000    IN. YS  
 ZMRP    .0000    IN. ZS  
 SCALE    .0055



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .6000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN.
			XS .0000 IN.
			YS .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

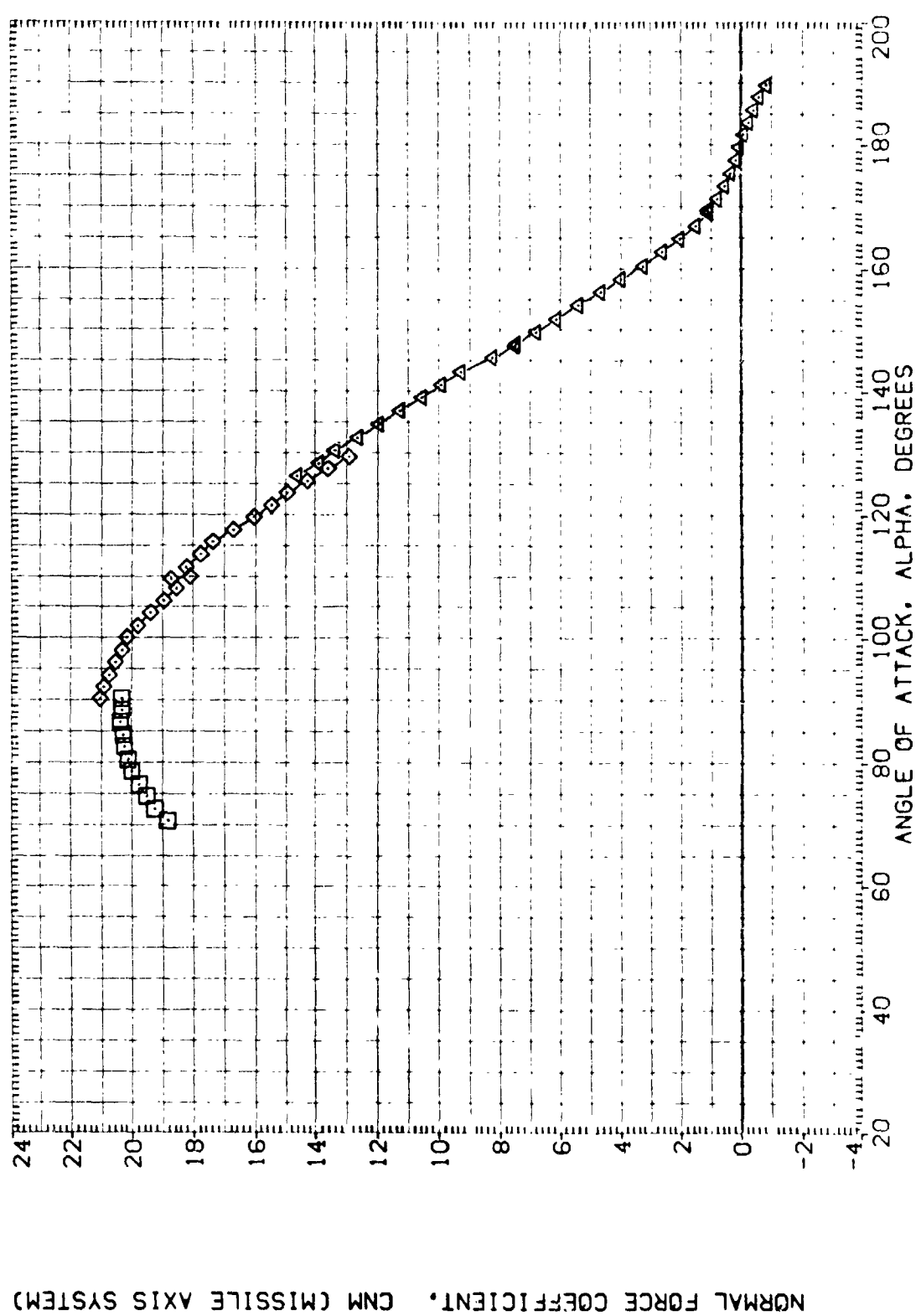


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
AIHA03	DATA NOT AVAILABLE
AIHO26	MSFC TVT604 (SAB) SRB WITH
AIHC03	MSFC TVT604 (SAB) SRB WITH
AIHO03	MSFC TVT604 (SAB) SRB WITH

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

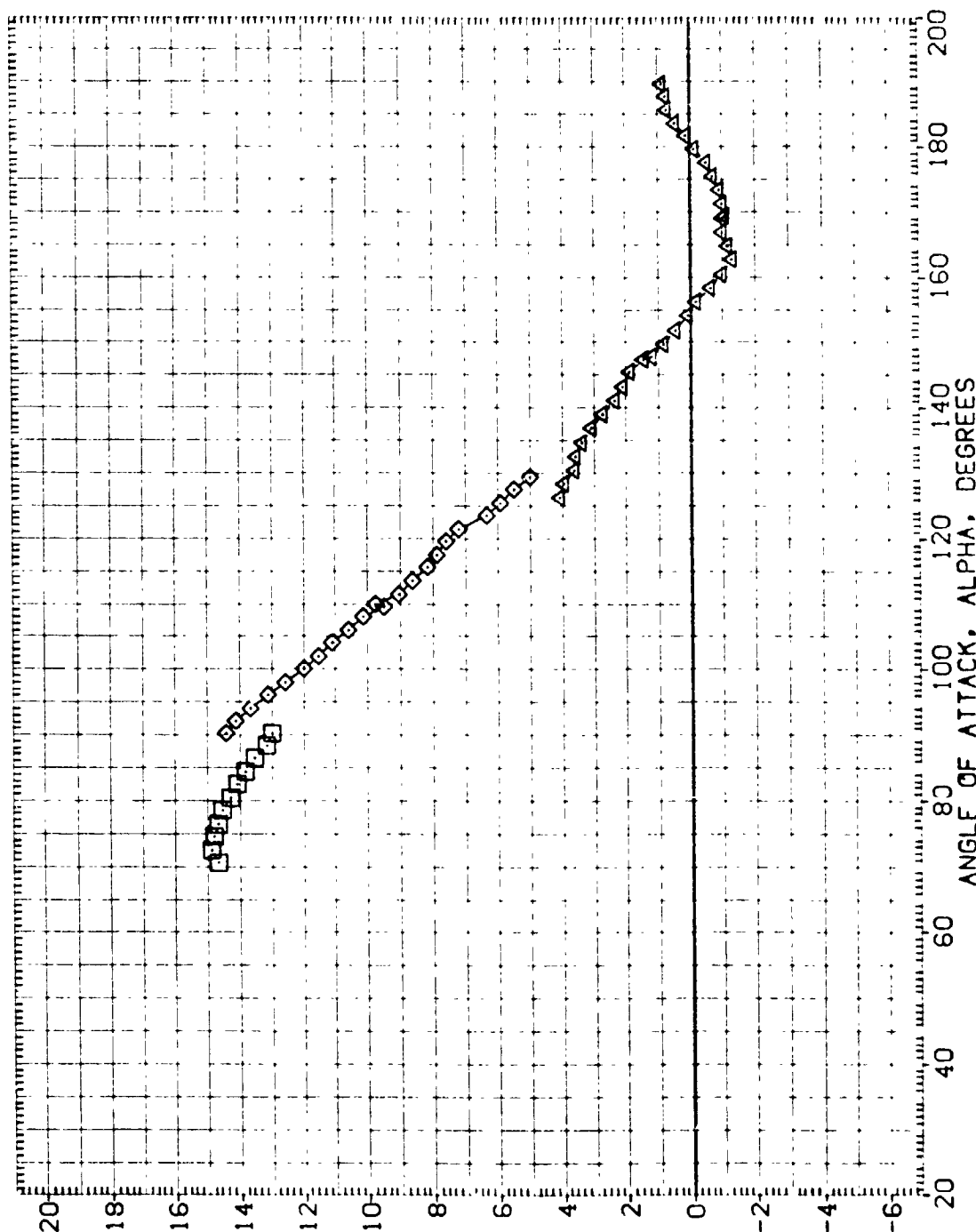


FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\Phi = 0$ )

$$(C)MACH = 1.96$$

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DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      .000

(A1H003)      DATA NOT AVAILABLE      .000

(A1H028)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000

REFERENCE INFORMATION

SREF      .SC30      50. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN. XS

YMRP      .0000      IN. YS

ZMRP      .0000      IN. ZS

SCALE      .0055

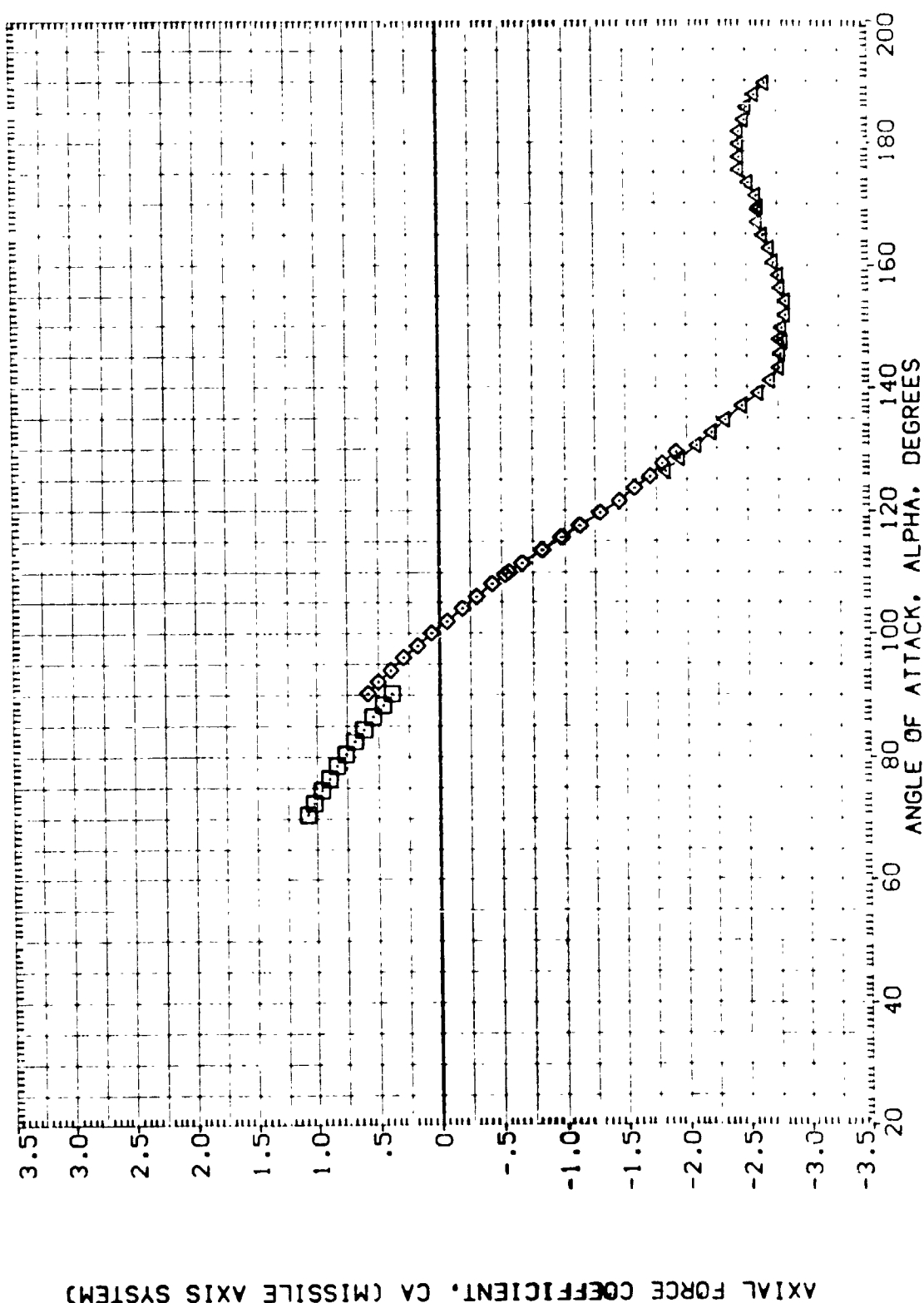


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\Phi = 0$ )

(MACH = 1.96)

SREF	.5000	50. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	N. XS
YMRP	.0000	IN. YS
ZMRP	.0000	IN. ZS
SCALE	.0055	

PHI 88888

CONFIGURATION	DESCRIPTION
DATA NOT AVAILABLE	
MSFC TV1604 (SABF)	\$18 WITH ALL PROTOBERANCES
MSFC TV1604 (SABF)	\$18 WITH ALL PROTOBERANCES
MSFC TV1604 (SABF)	\$18 WITH ALL PROTOBERANCES

DATA SET SYMBOL

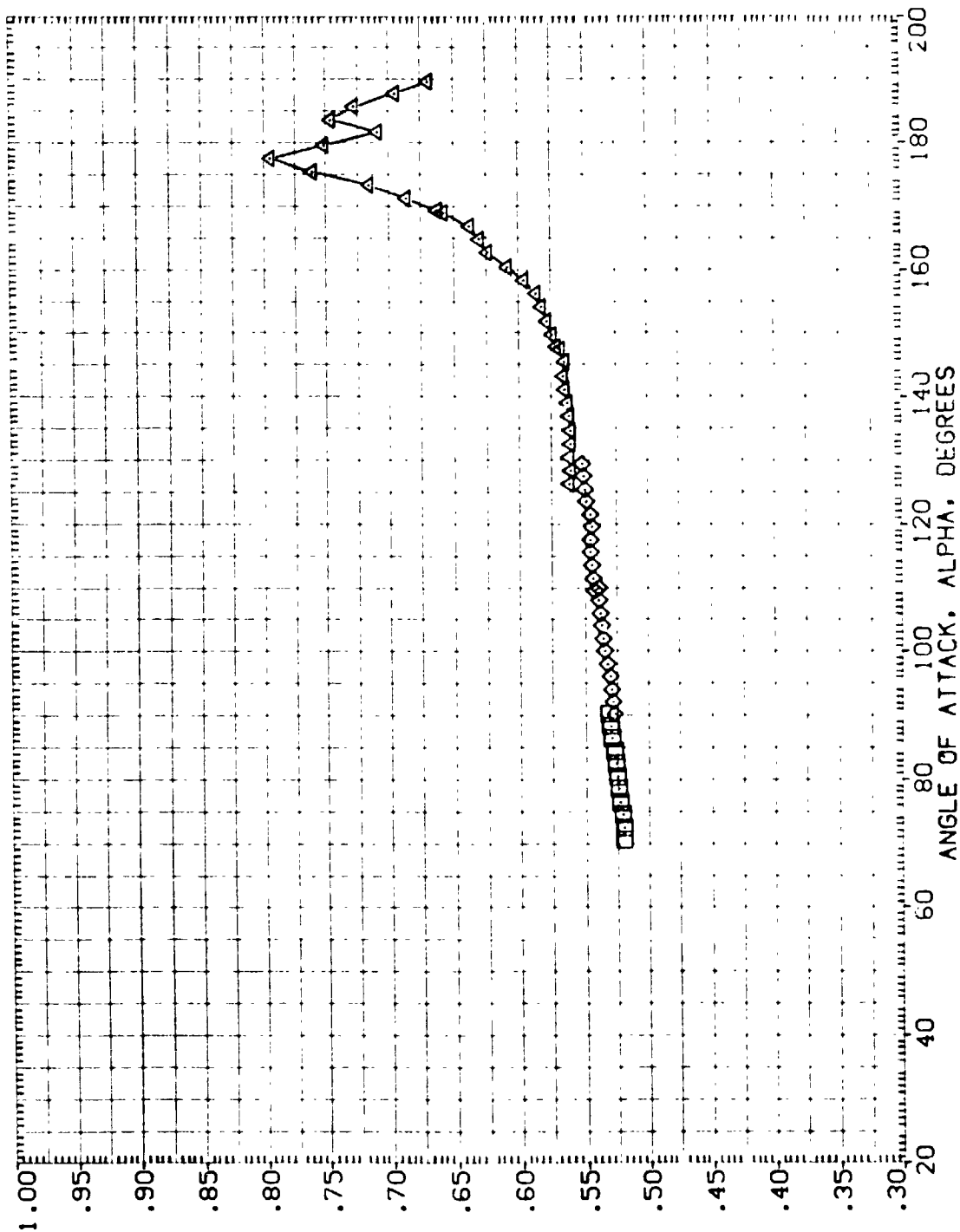


FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTRUSANCES (PHI = 0)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 SQ. IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

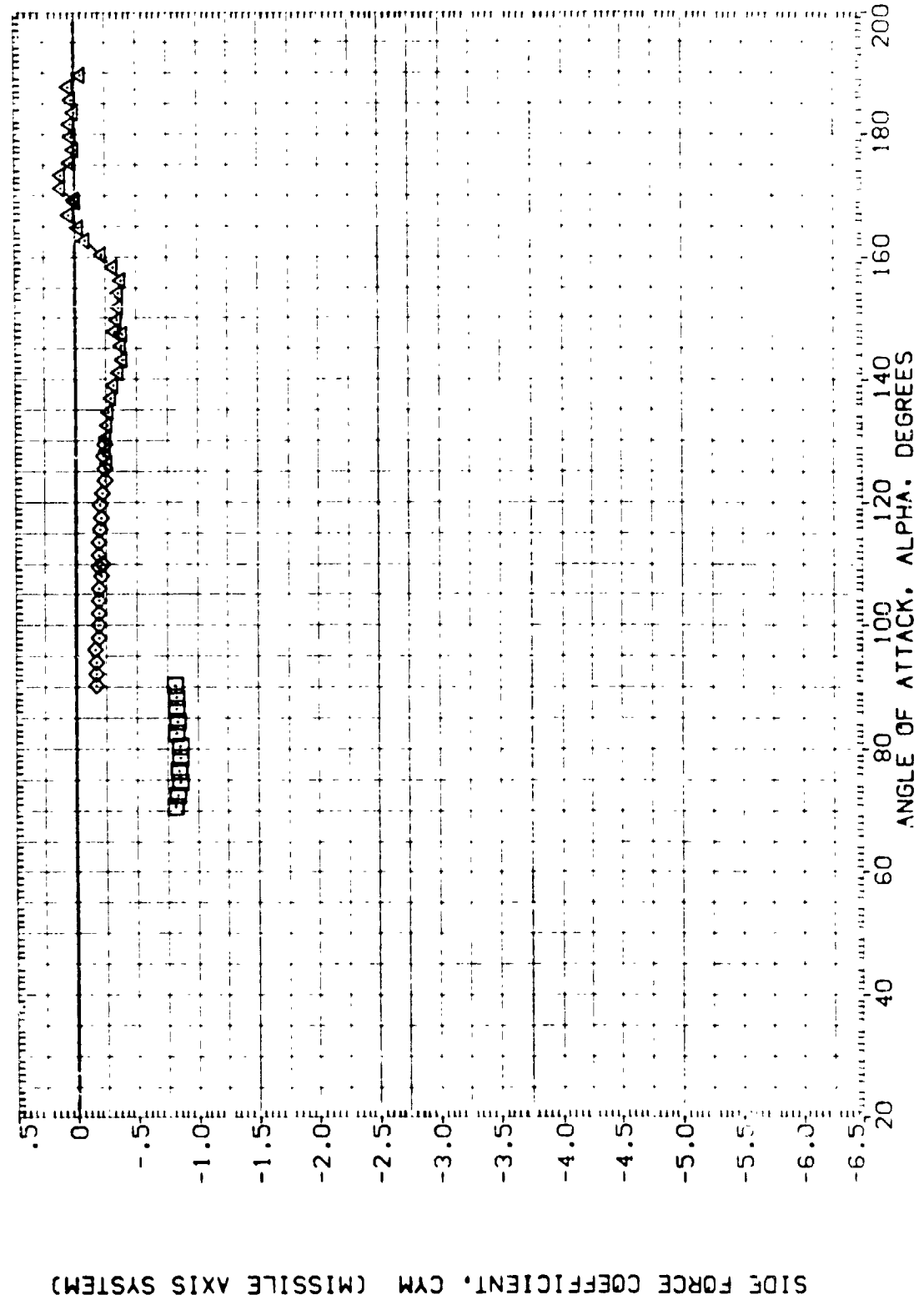


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = C)

(E)MACH = 1.96



YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 SQ. IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .9000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

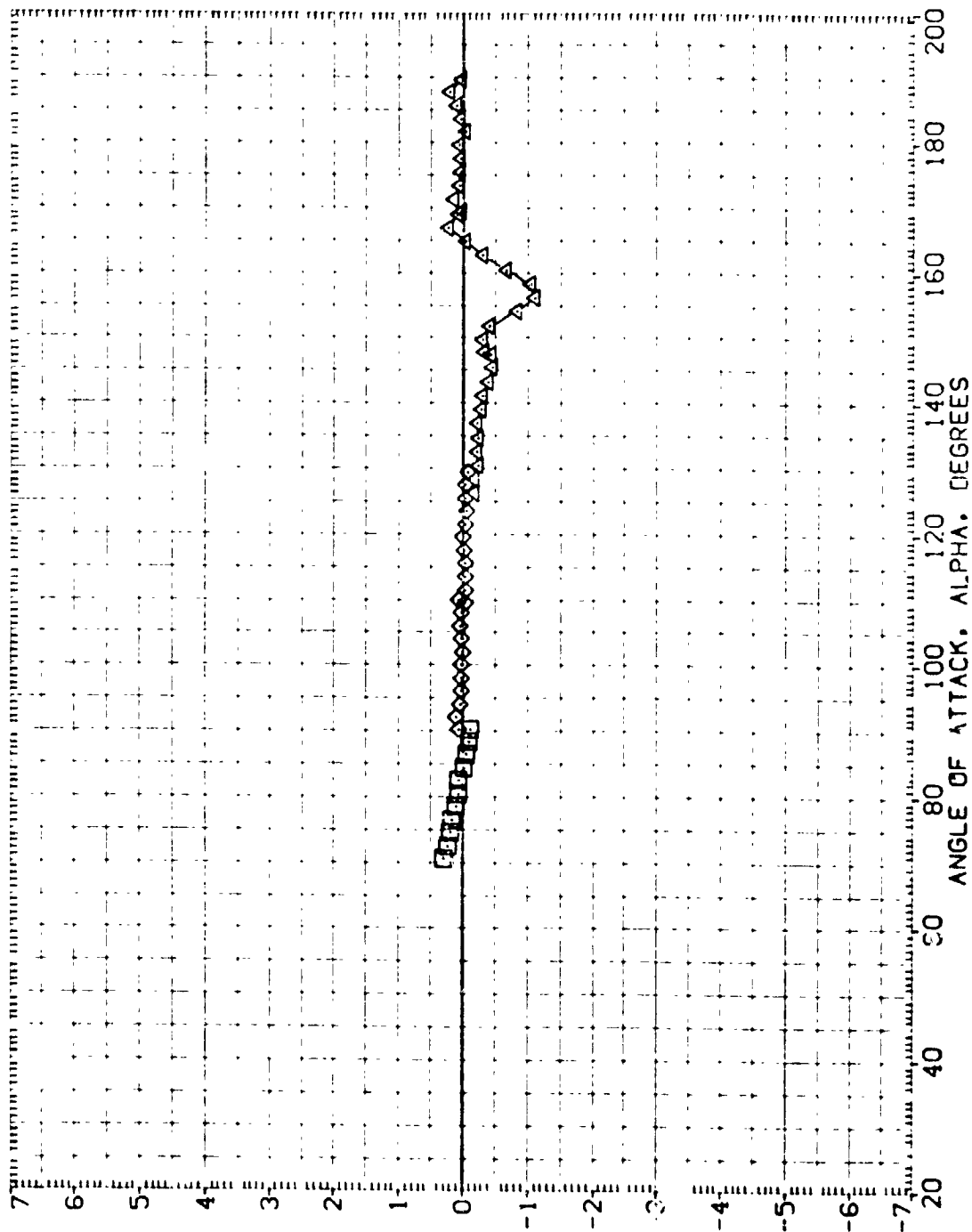


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 0)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 SQ IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BSREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XREF 5.7210 IN.
			YREF .0000 IN.
			ZREF .0000 IN.
			SCALE .0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

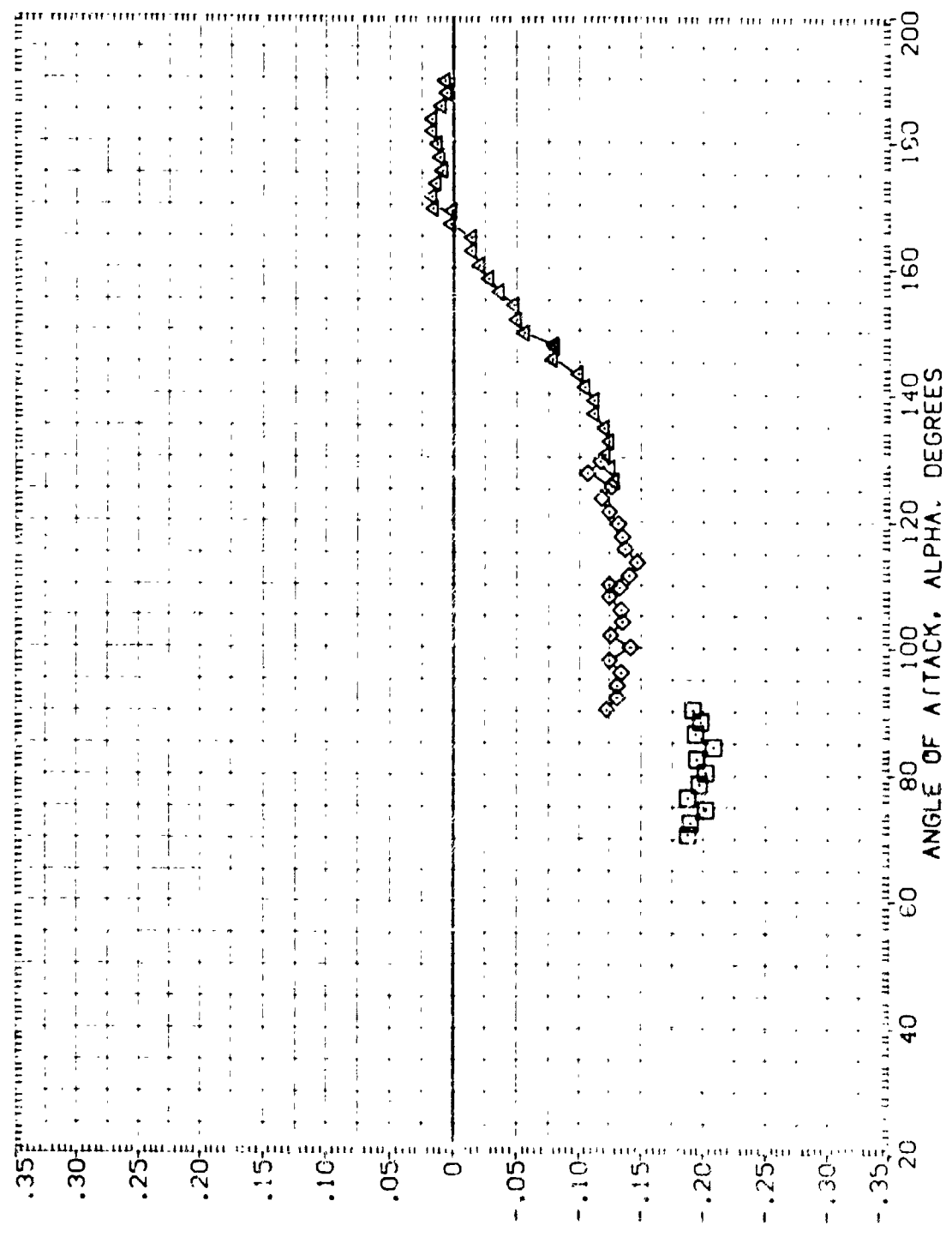


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(MACH = 1.96)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H003)      DATA NOT AVAILABLE      1.000      SREF      .5030      SQ. IN.

(A1H026)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      LREF      .8000      IN.

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      BREF      .8000      IN.

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      XMRP      5.7210      IN.      XS

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      ZMRP      .0000      IN.      ZS

SCALE      .0055

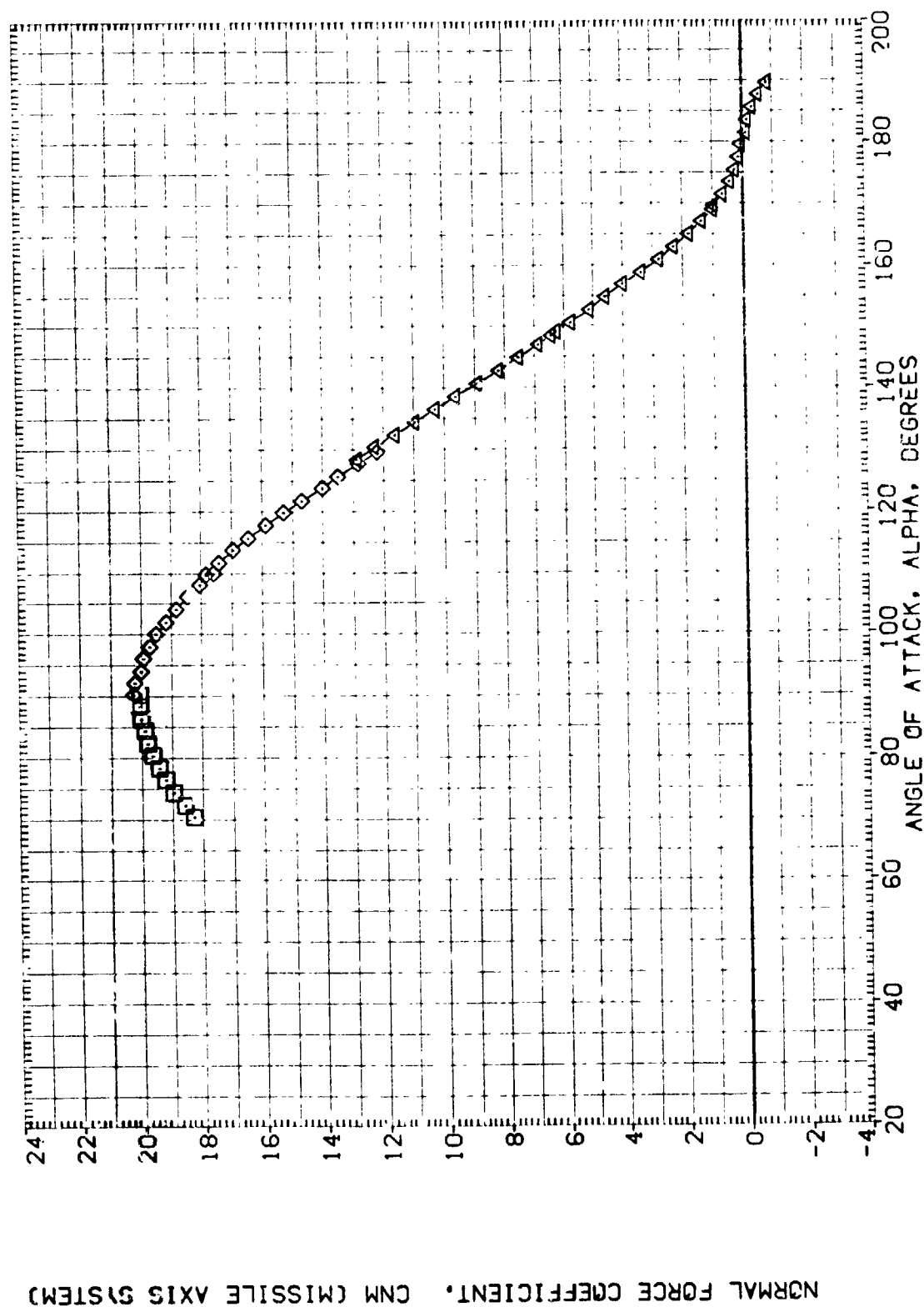


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF .5030 SQ. IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. YS
			YMRP .0000 IN. ZS
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

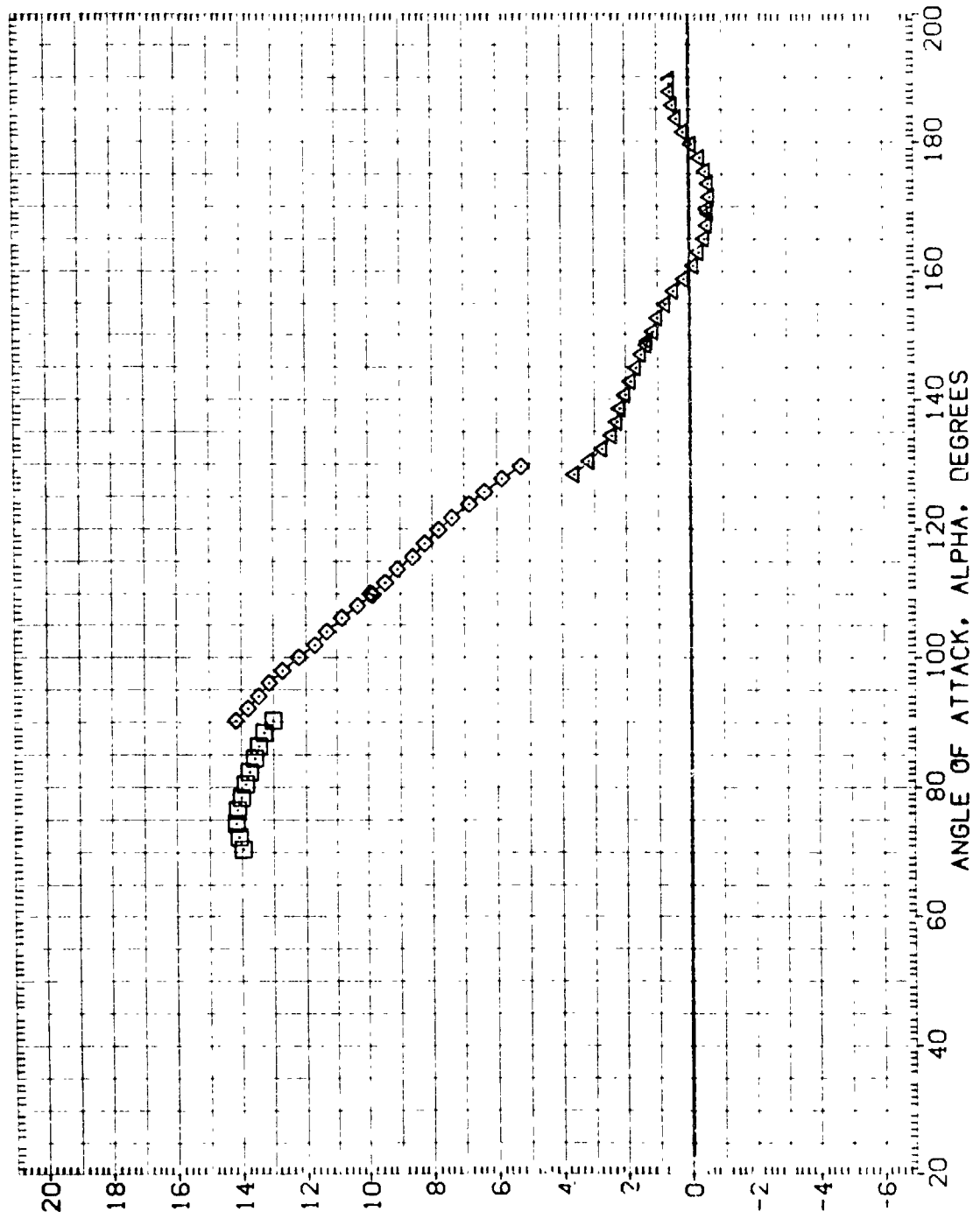


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A11H003)	DATA NOT AVAILABLE	.000	SREF 5030 IN.
(A11H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF 8000 IN.
(A11H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF 5000 IN.
(A11H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

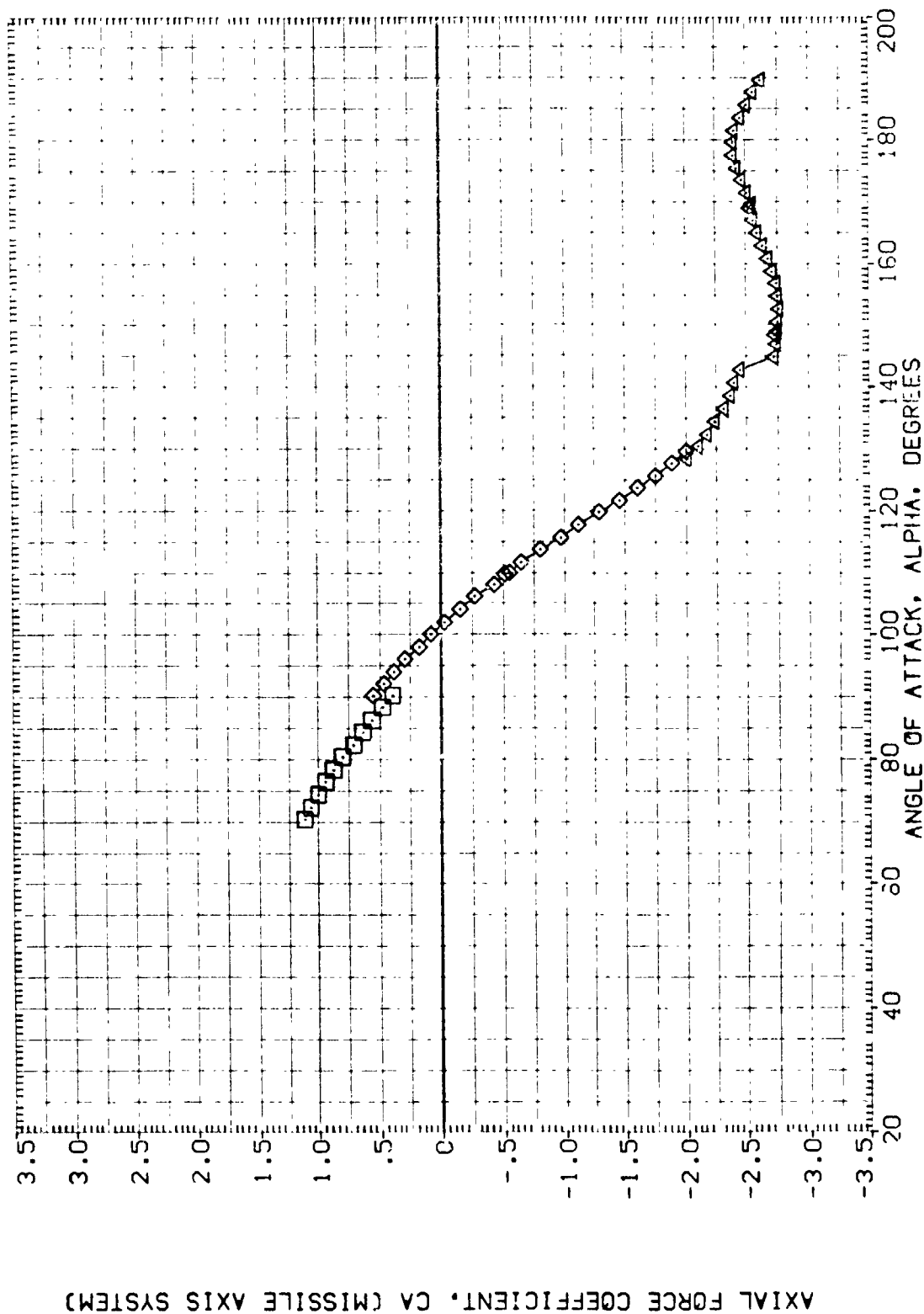
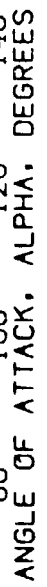


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\Phi = 0$ )

(F)MACH = 2.74

DATA SET SYMBOL	
[A1HA03]	
[A1HO26]	
[A1HC03]	
[A1HO03]	

□ 一一一


$$(F)_{\text{MACH}} = 2.74$$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	DATA NOT AVAILABLE	.000	SREF 5030 SQ. IN.
(A1H006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF 8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF 8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

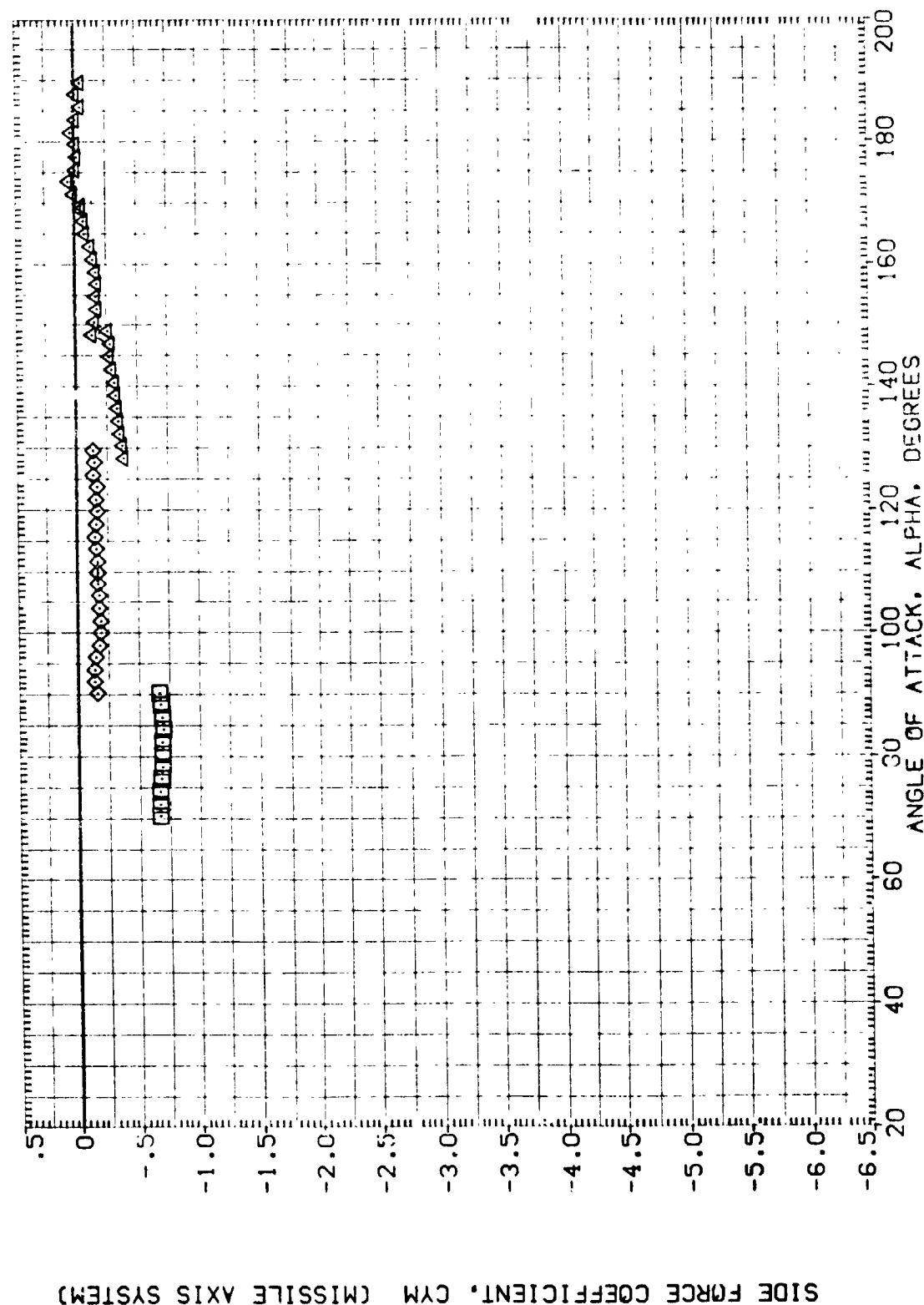


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(F)MACH = 2.74

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
{AIH03}		DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	.000		SREF	.5030 IN.
{AIH026}		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		LREF	.8000 IN.
{AIH003}		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		BREF	.8000 IN.
{AIH003}		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	.000		AMRP	5.7210 IN.
						YMRP	.0000 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

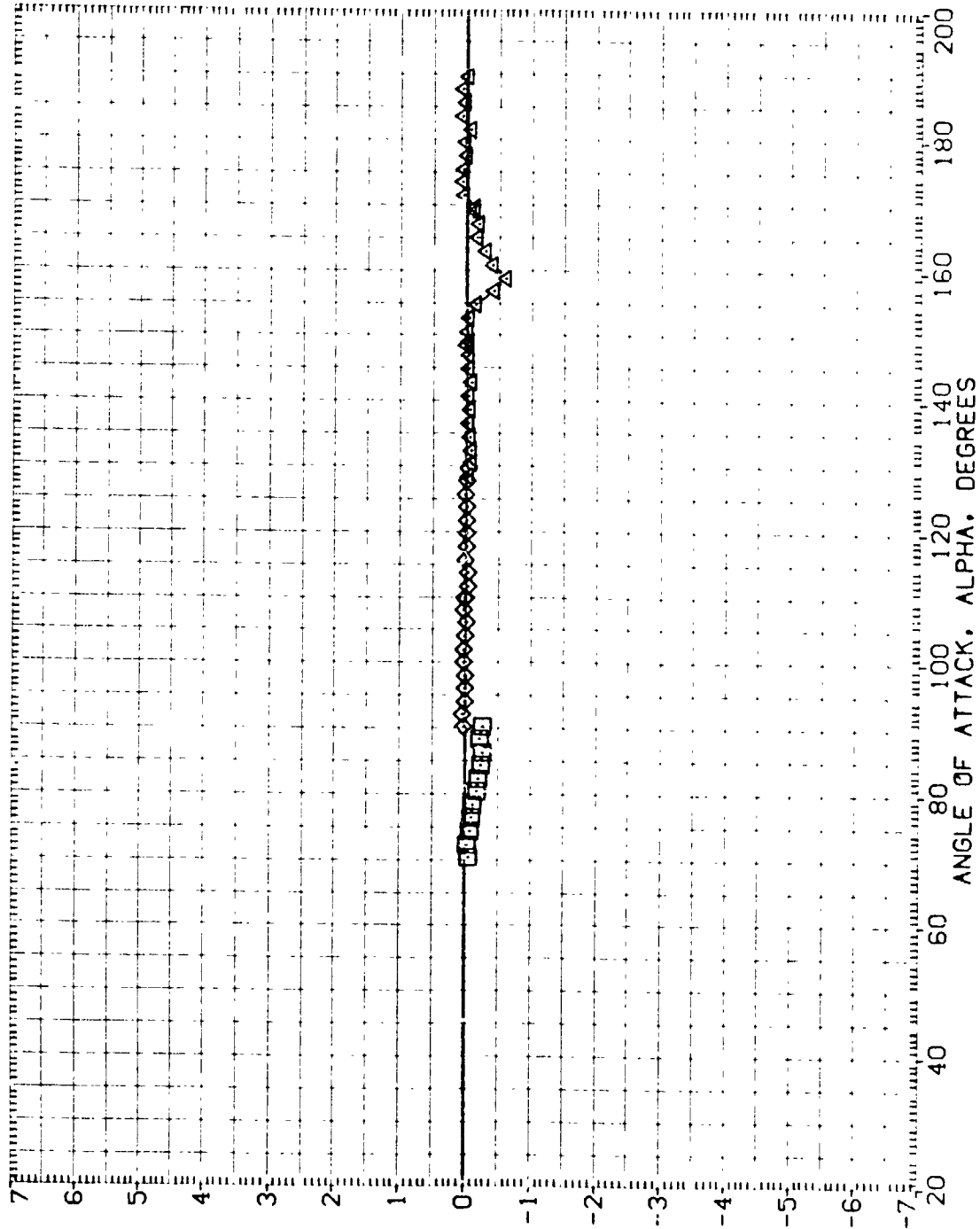


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(F)MACH = 2.74



	DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(A)IHAO3)		DATA NOT AVAILABLE	PROTEUBERANCES
(A)IH026)		MSFC TVT604 (SAB)	SRB WITH ALL PROTEUBERANCES
(A)IHCO3)		MSFC TVT604 (SAB)	SRB WITH ALL PROTEUBERANCES
(A)IHOC3)		MSFC TVT604 (SAB)	SRB WITH ALL PROTEUBERANCES

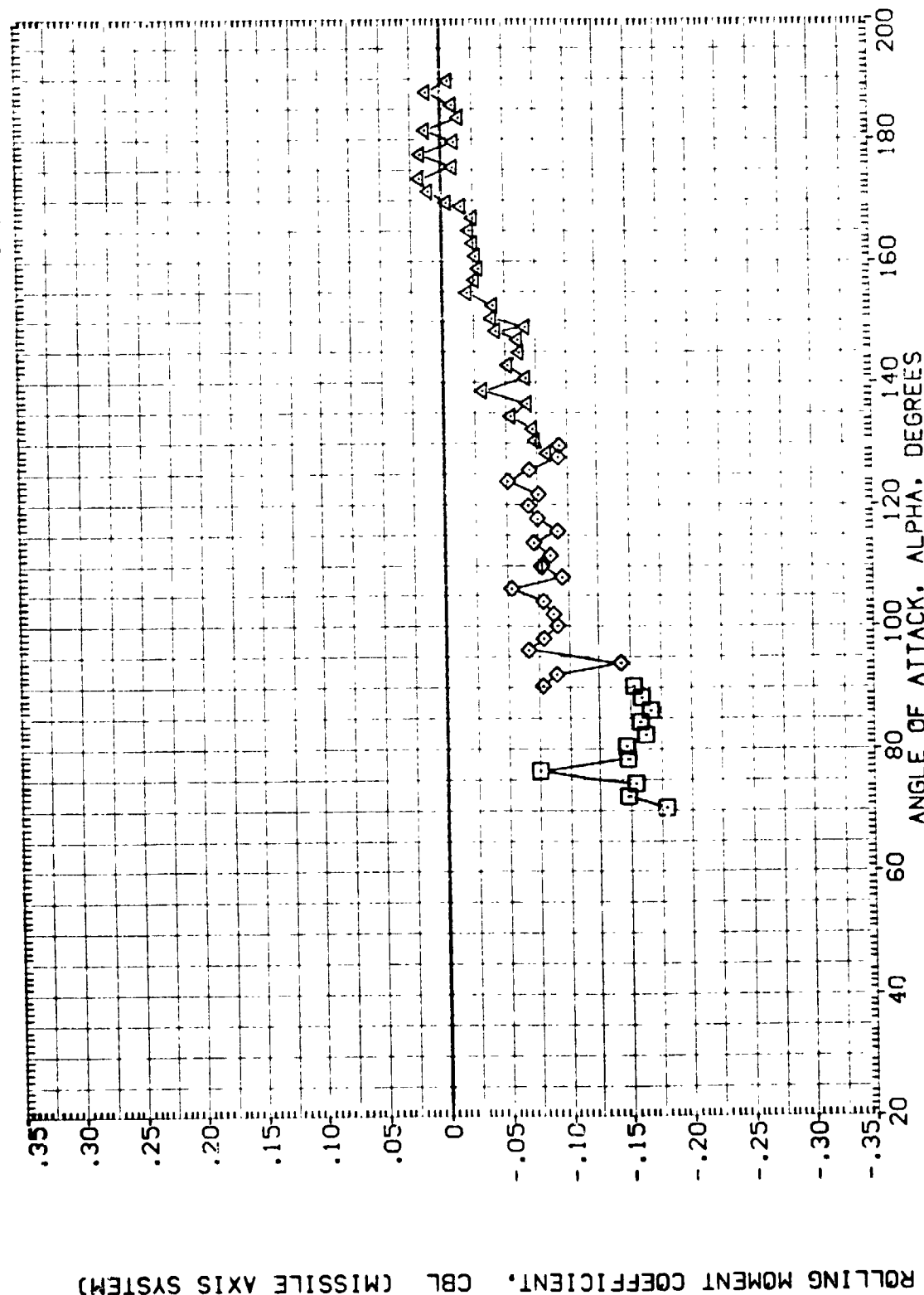


FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\Phi = 0$ )

$$(F)_{MACH} = 2.74$$

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DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A)H026	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

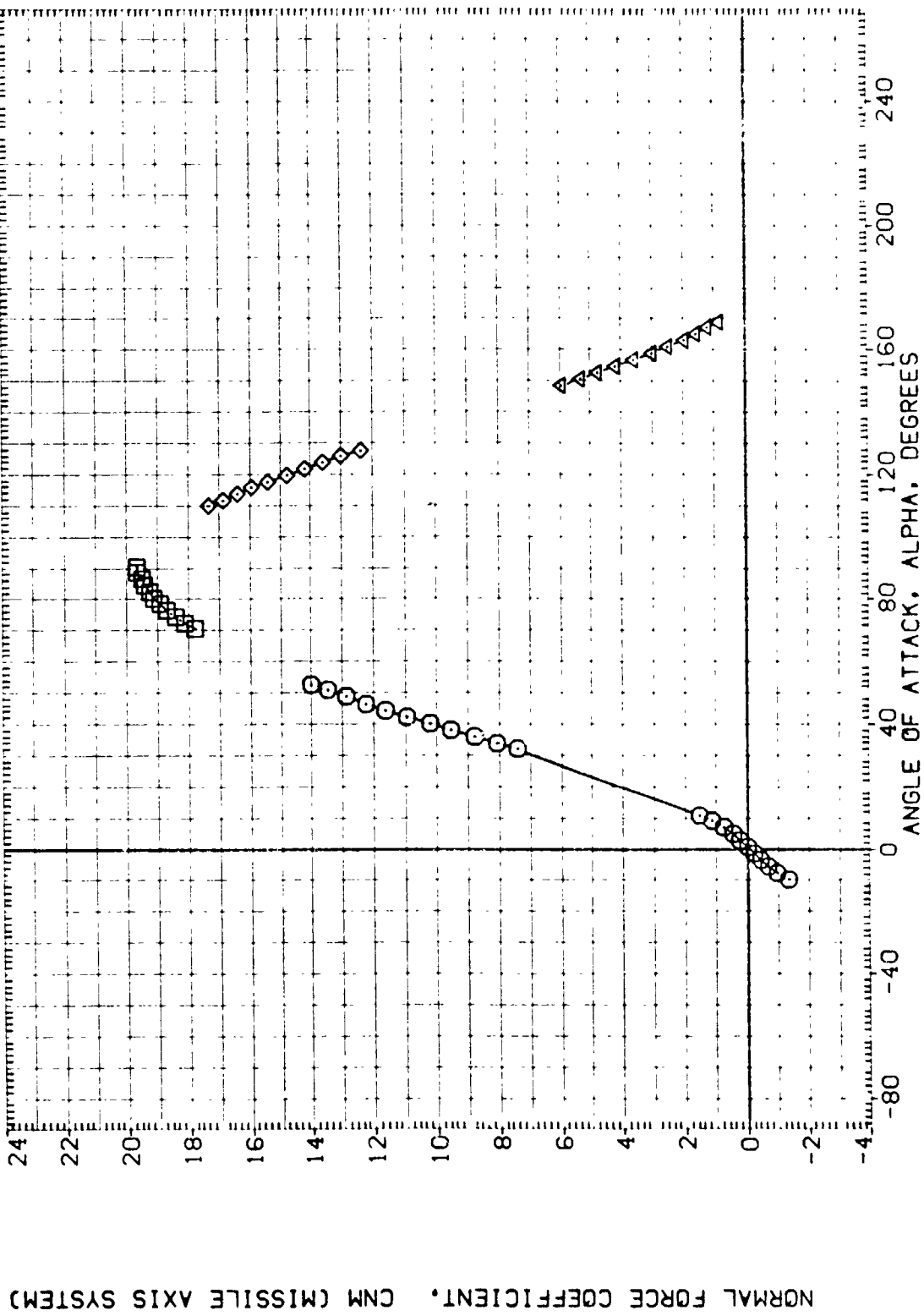


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 0)

(A)MACH = 3.48

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A)H026	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN. X5
			ZMRP .0000 IN. Y5
			SCALE .0055 IN. Z5

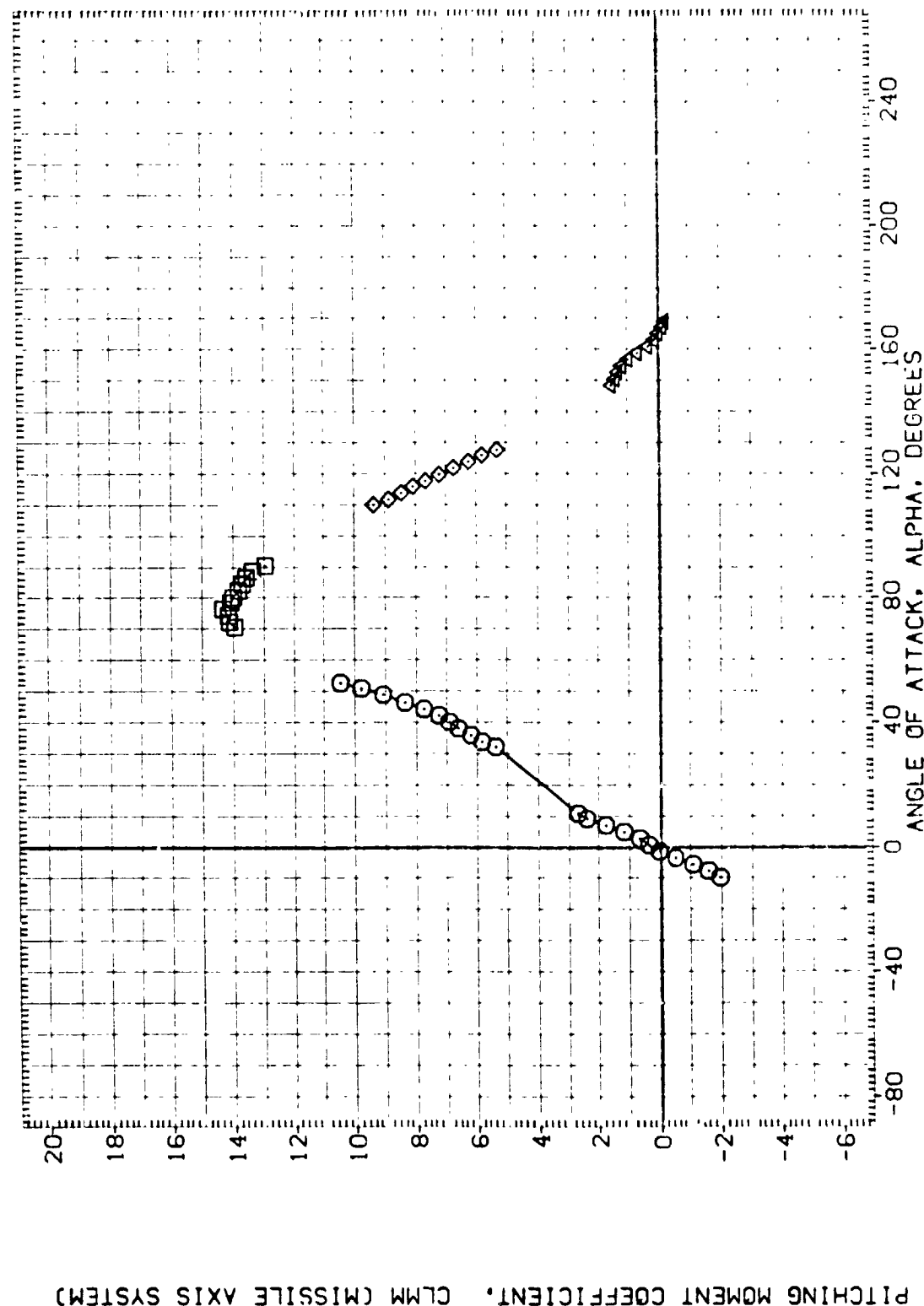


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 0)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H003	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	SPREF .5030 SQ. IN.
(A)H026	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A)H003	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	BRREF .8000 IN.
(A)H003	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN.
(A)H003	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP .0000 IN.
(A)H003	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	.000	ZMRP .0000 IN.
			SCALE .0055

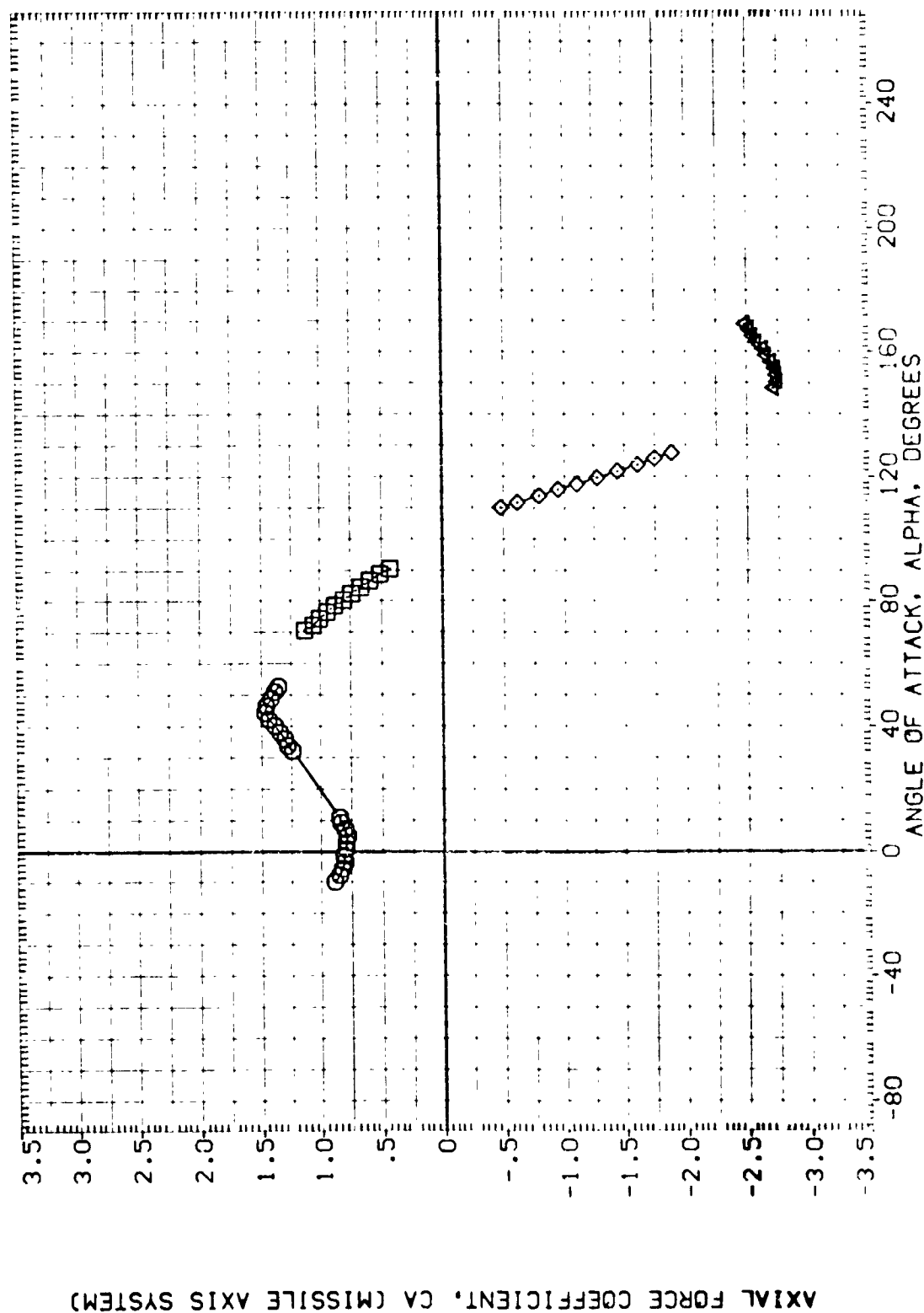


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\phi = 0$ )

(A)MACH = 3.48

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BRREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000

ALL PROTUBERANCES  
 ALL PROTUBERANCES  
 ALL PROTUBERANCES

CONFIGURATION DESCRIPTION  
 MSFC TV 604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TV 604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TV 604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TV 604 (SABF) SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL  
 (A1H003)  
 (A1H026)  
 (A1H003)  
 (A1H003)

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

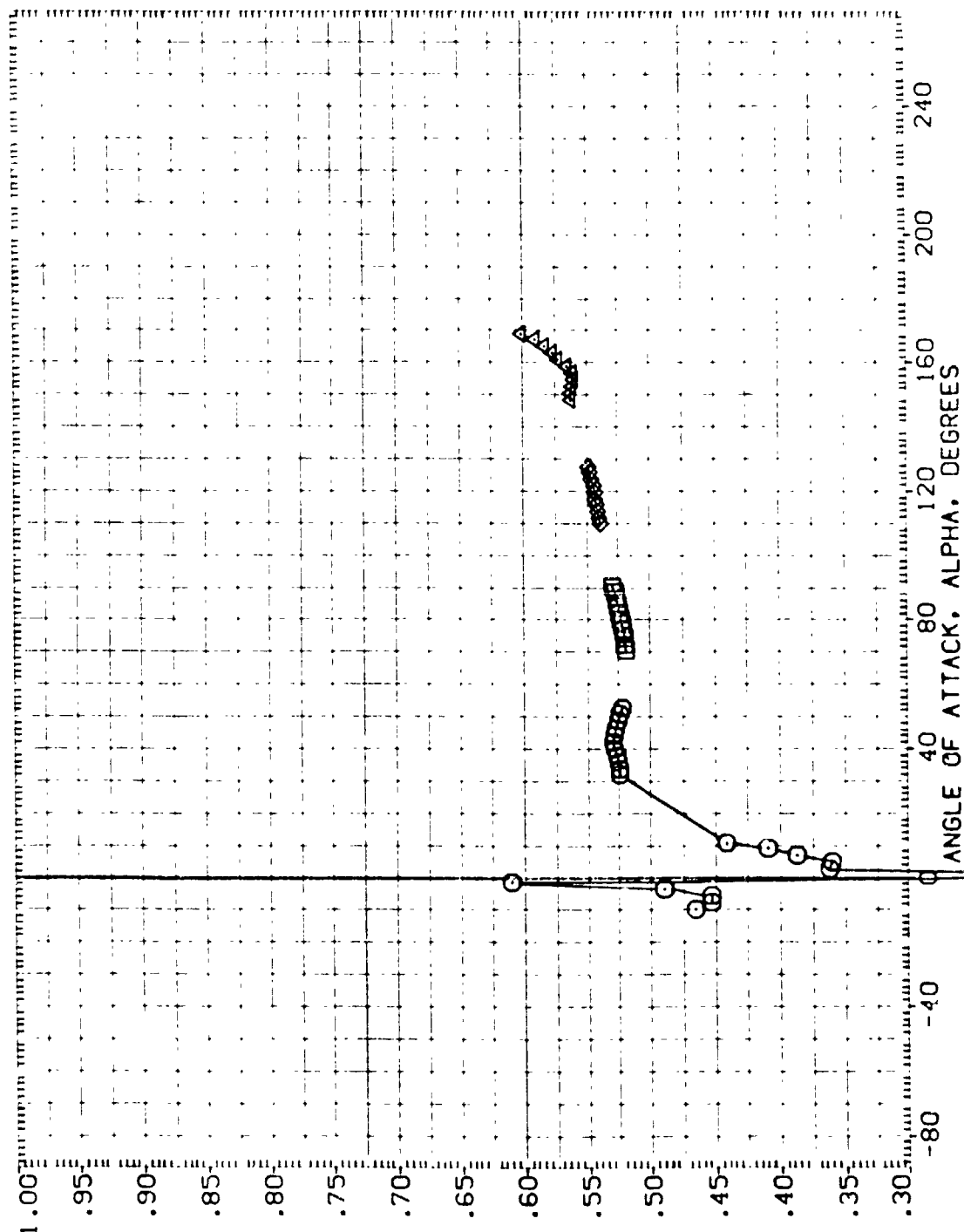


FIGURE 19. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 0)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H403)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A1H4026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H403)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H403)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

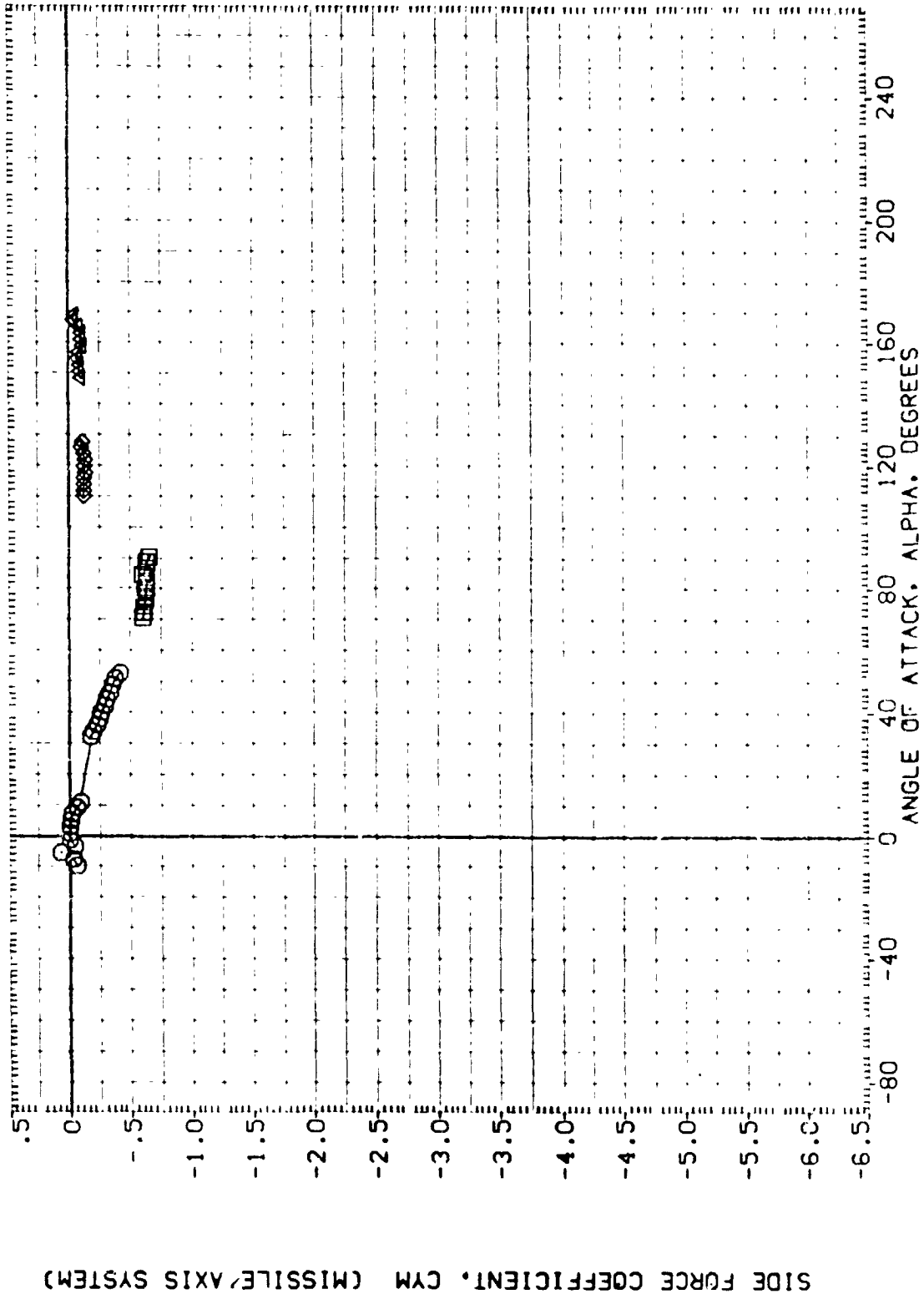


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 0)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .50 IN.
(A1H026)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .9 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YREF 5 7210 IN.
			ZREF .0000 IN.
			SCALE .0055

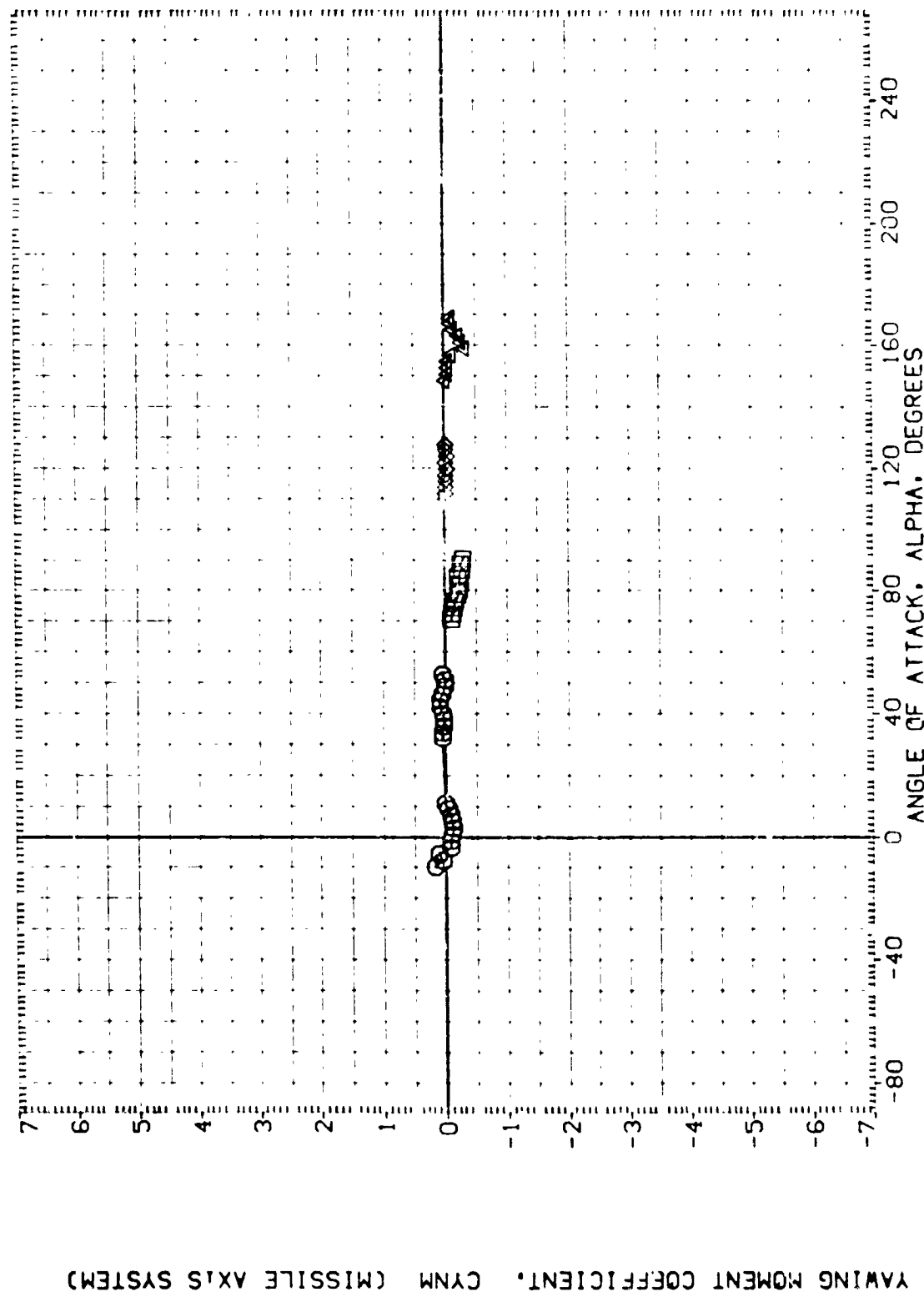


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

DATA SET SYMBOL CONFIGURATION DESCRIPTION PHI

(A)H003) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES .000

(A)H026) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES .000

(A)H003) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES .000

(A)H003) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES .000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

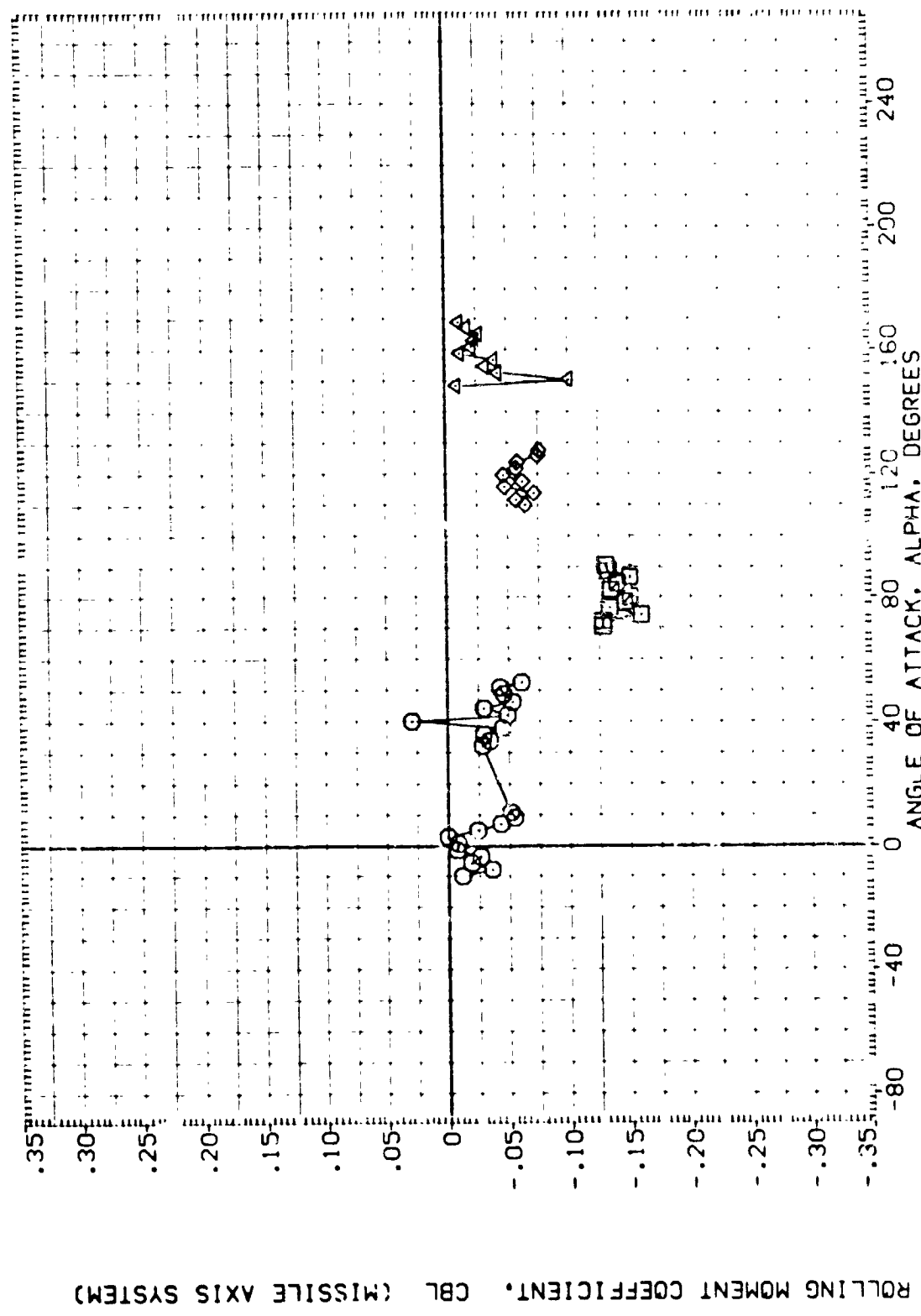


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(A)MACH = 3.48

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(AIH026)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(AIH003)	DATA NOT AVAILABLE	.000	SRREF 9000 IN.
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XTRP 5.7210 IN. XS
			YTRP .0000 IN. YS
			ZTRP .0000 IN. ZS
			SCALE .0005

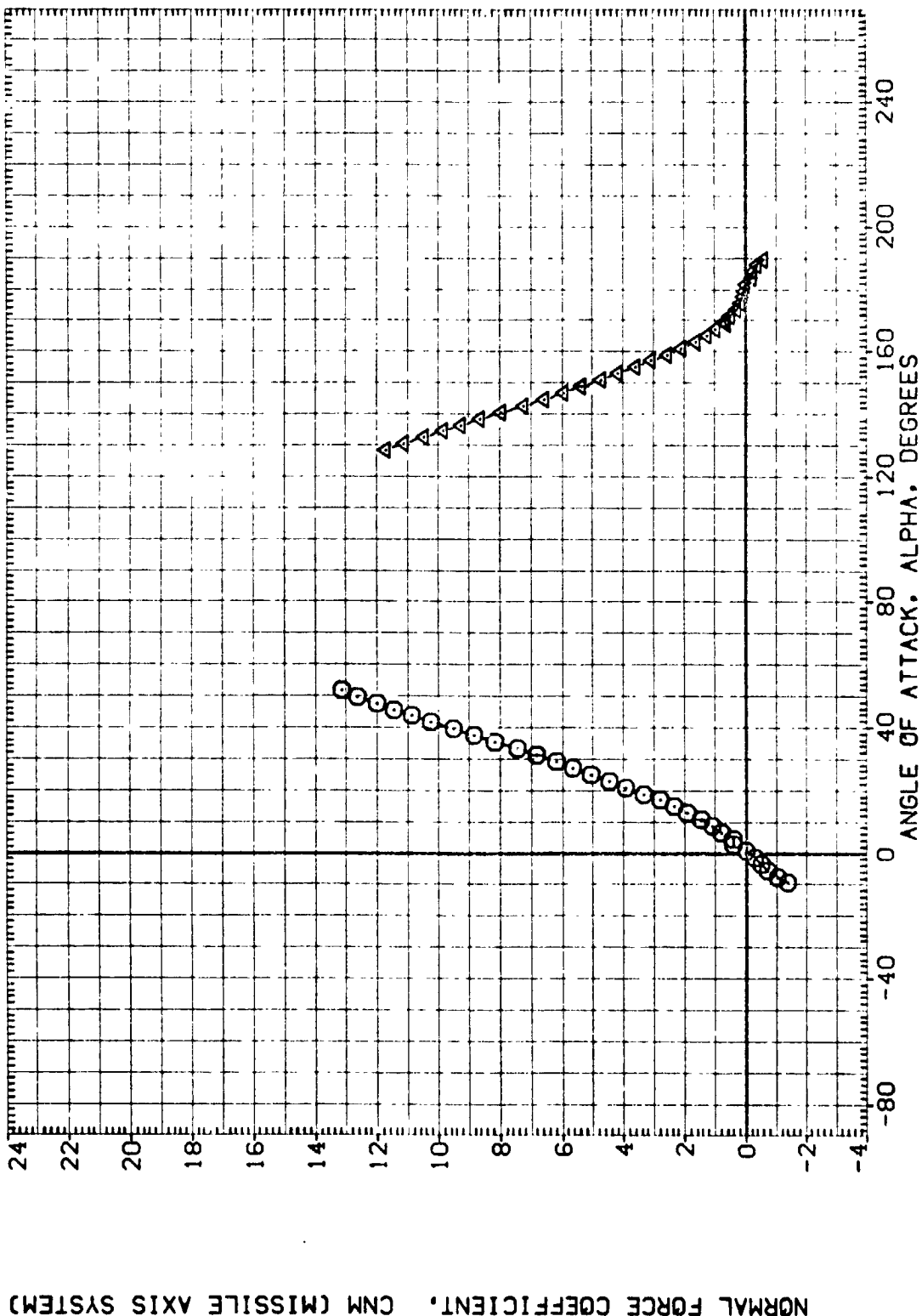


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(B) MACH = 4.45

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000

CONFIGURATION DESCRIPTION

MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
DATA NOT AVAILABLE	
DATA NOT AVAILABLE	
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL

(A1H003)	
(A1H026)	
(A1H003)	
(A1H003)	

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

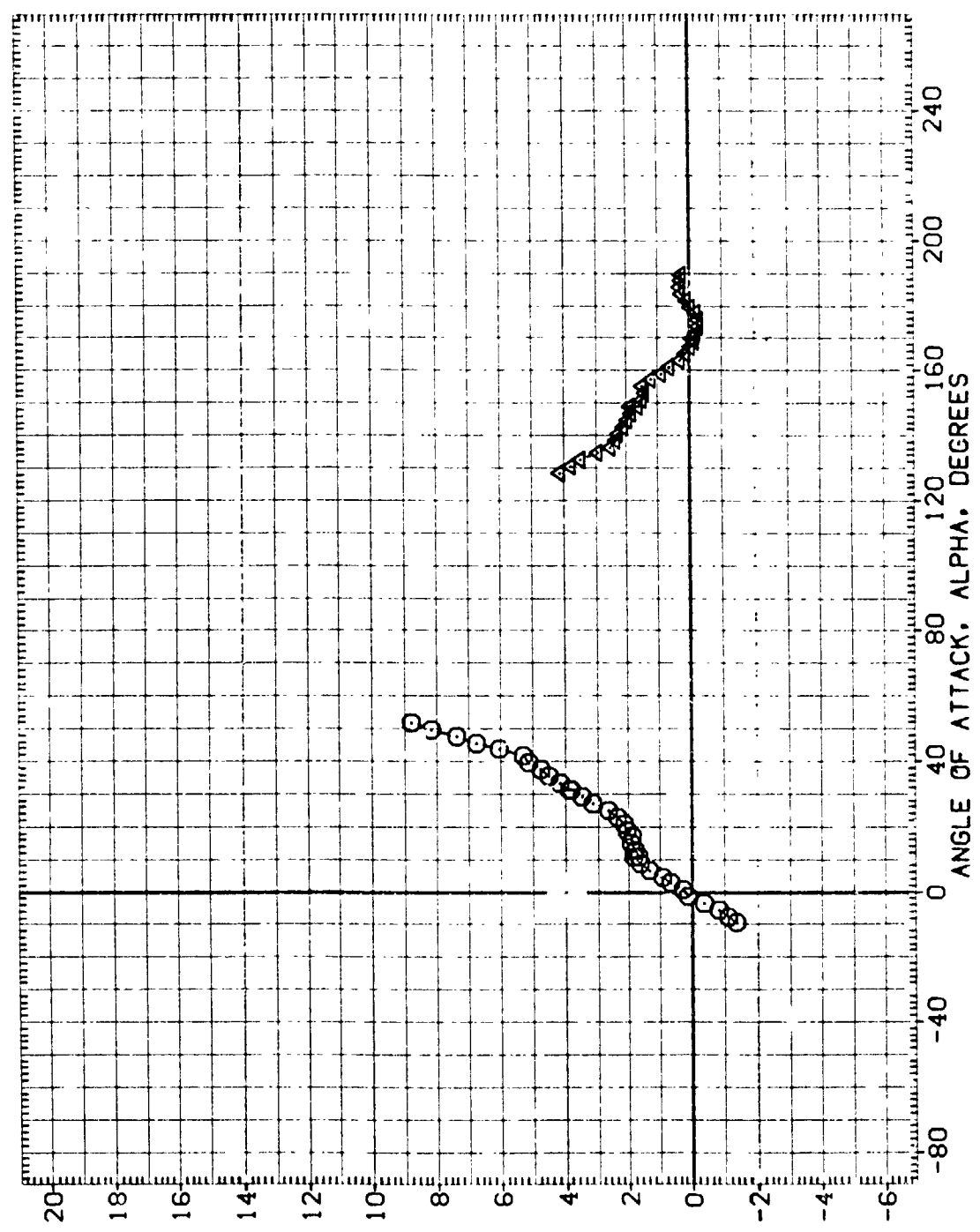


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H026)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

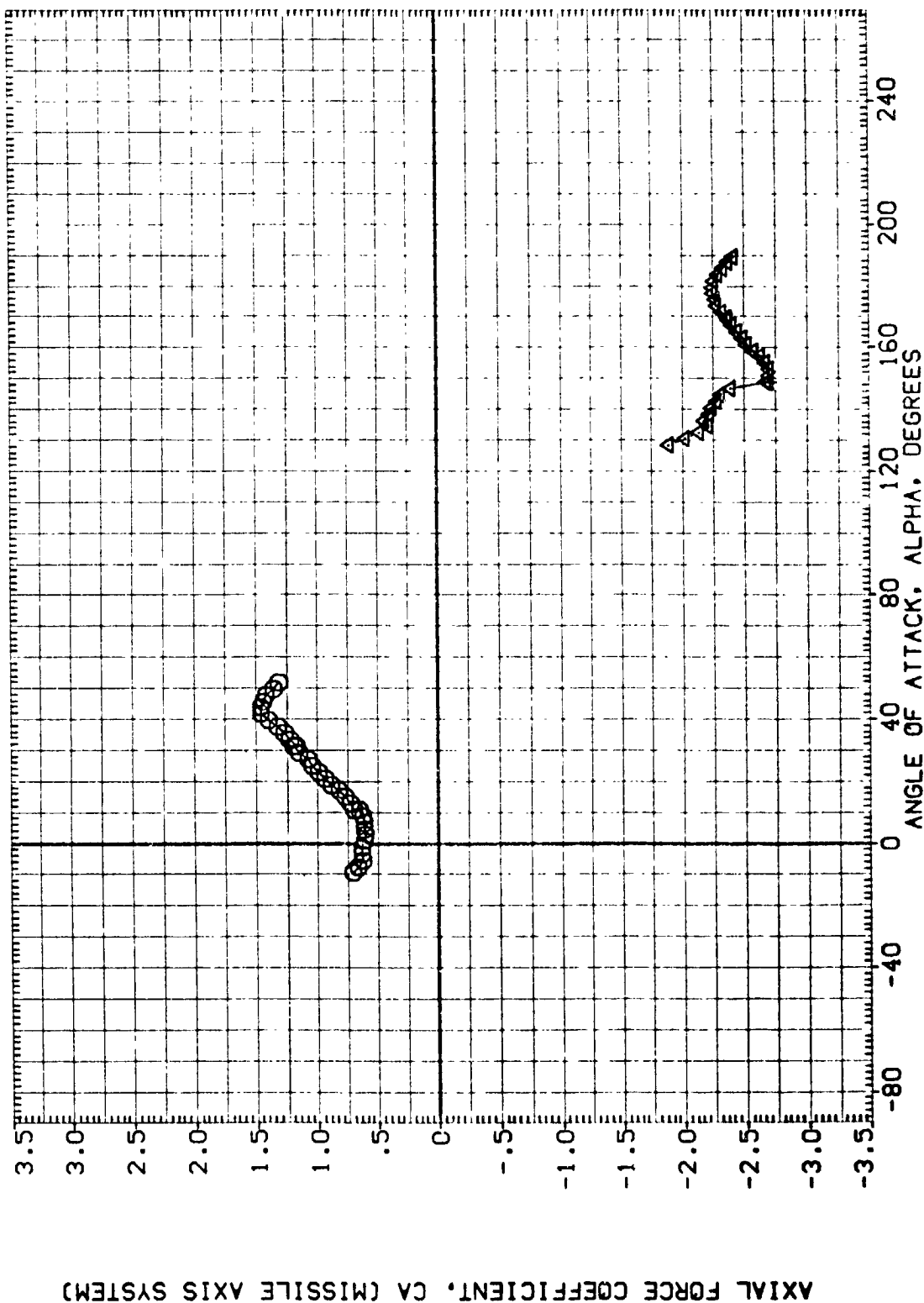


FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 0)

(B)MACH = 4.45

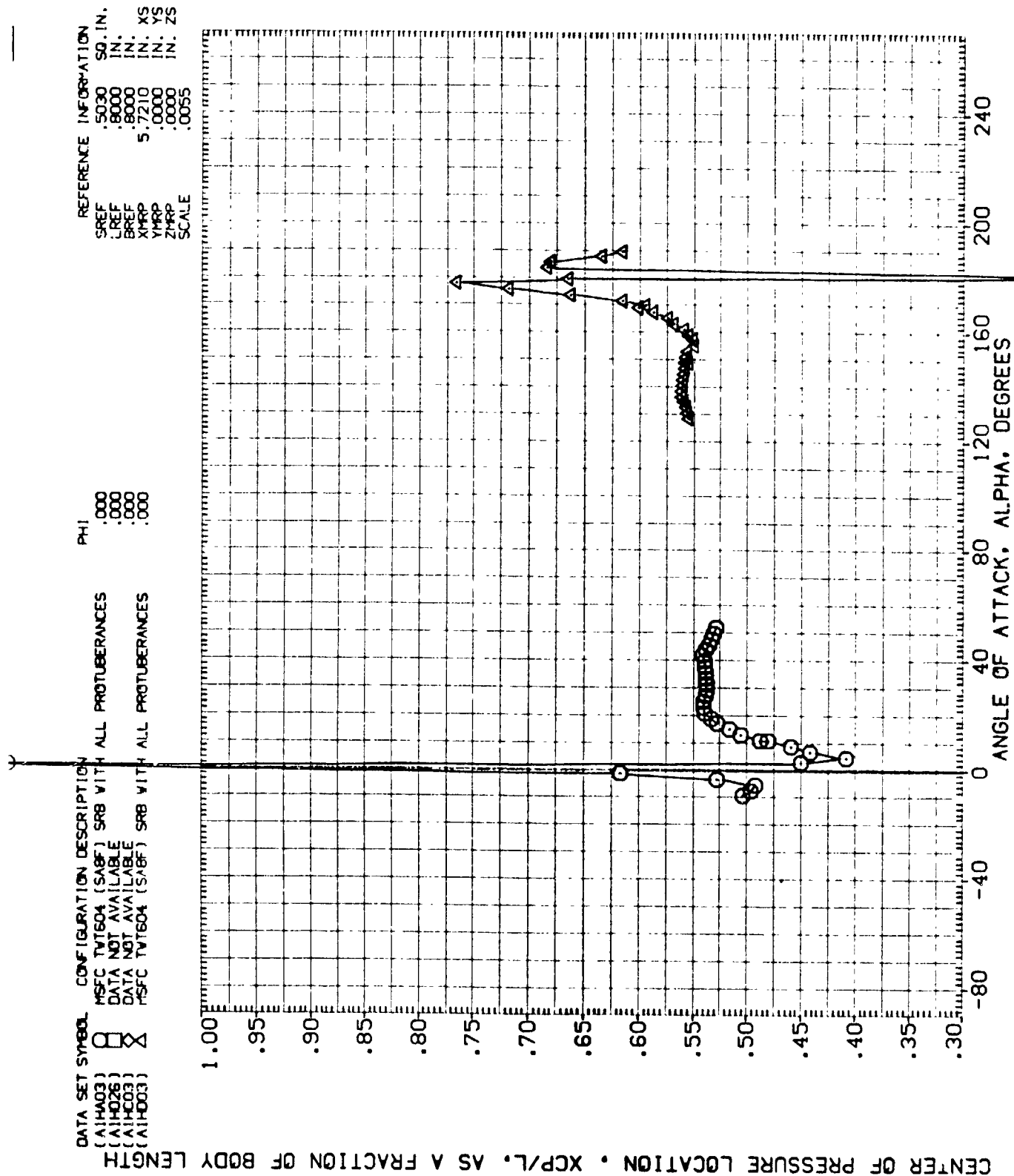


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 0)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A1H026)	DATA NOT AVAILABLE	.000	LREF .9000 IN.
(A1H003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YPRP 5.7210 IN.
			ZPRP .0000 IN.
			SCALE .0055

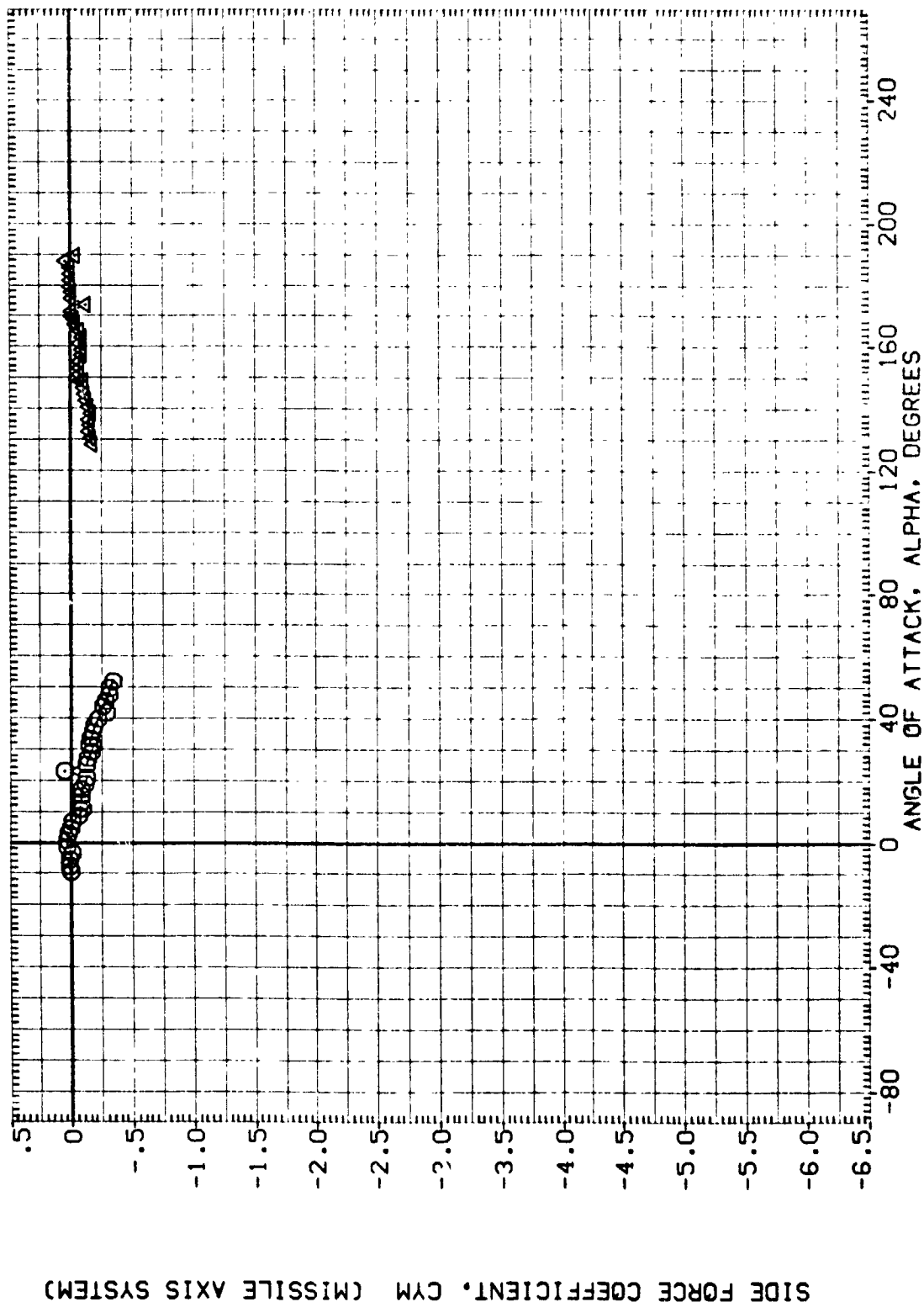


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H026)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	YMPP 5.7210 IN. XS
			ZMPP .0000 IN. YS
			SCALE .0055

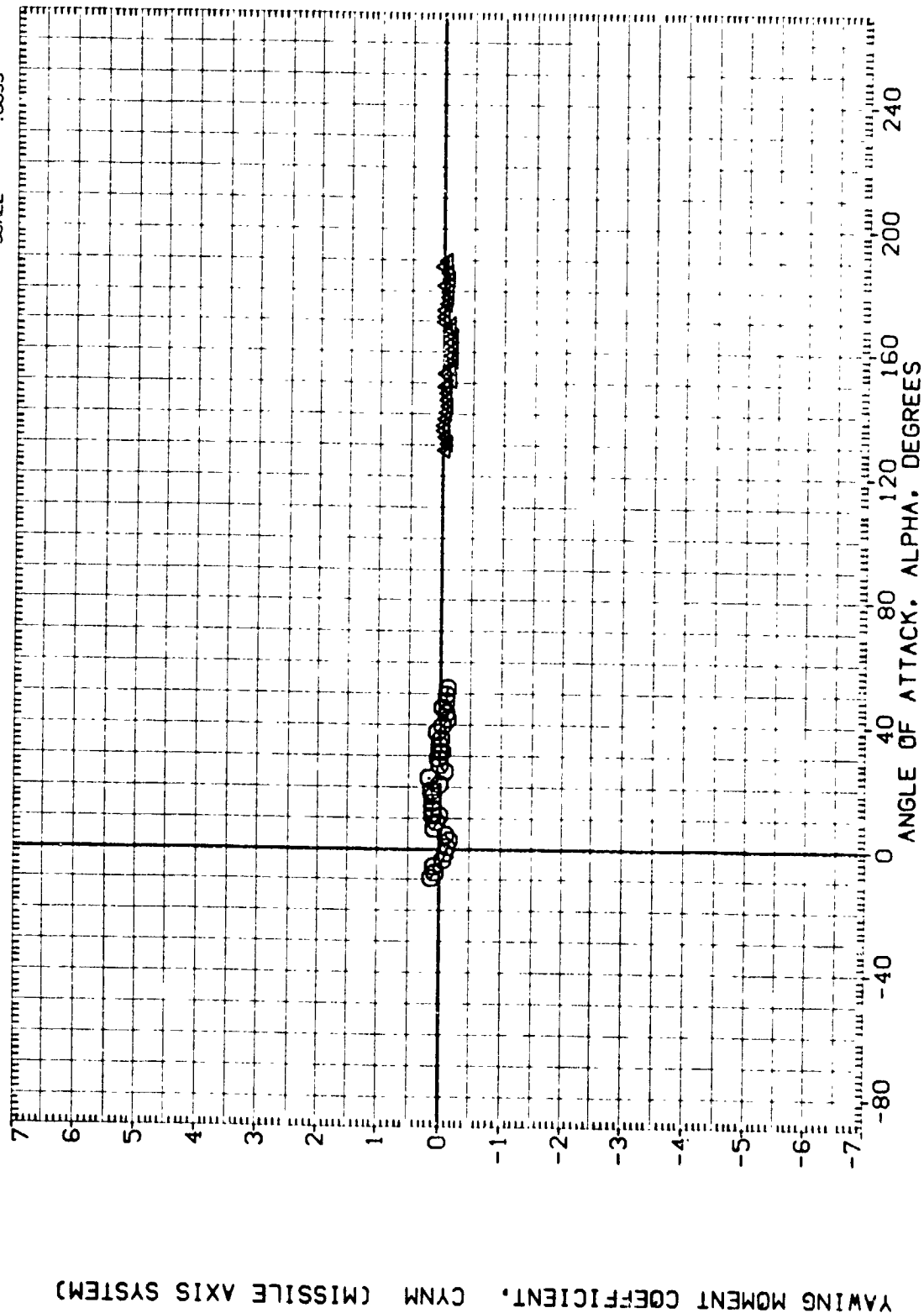


FIGURE 19. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 0)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A11-H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A11-H026)	DATA NOT AVAILABLE	.000	IREF .8000 IN.
(A11-H003)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A11-H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

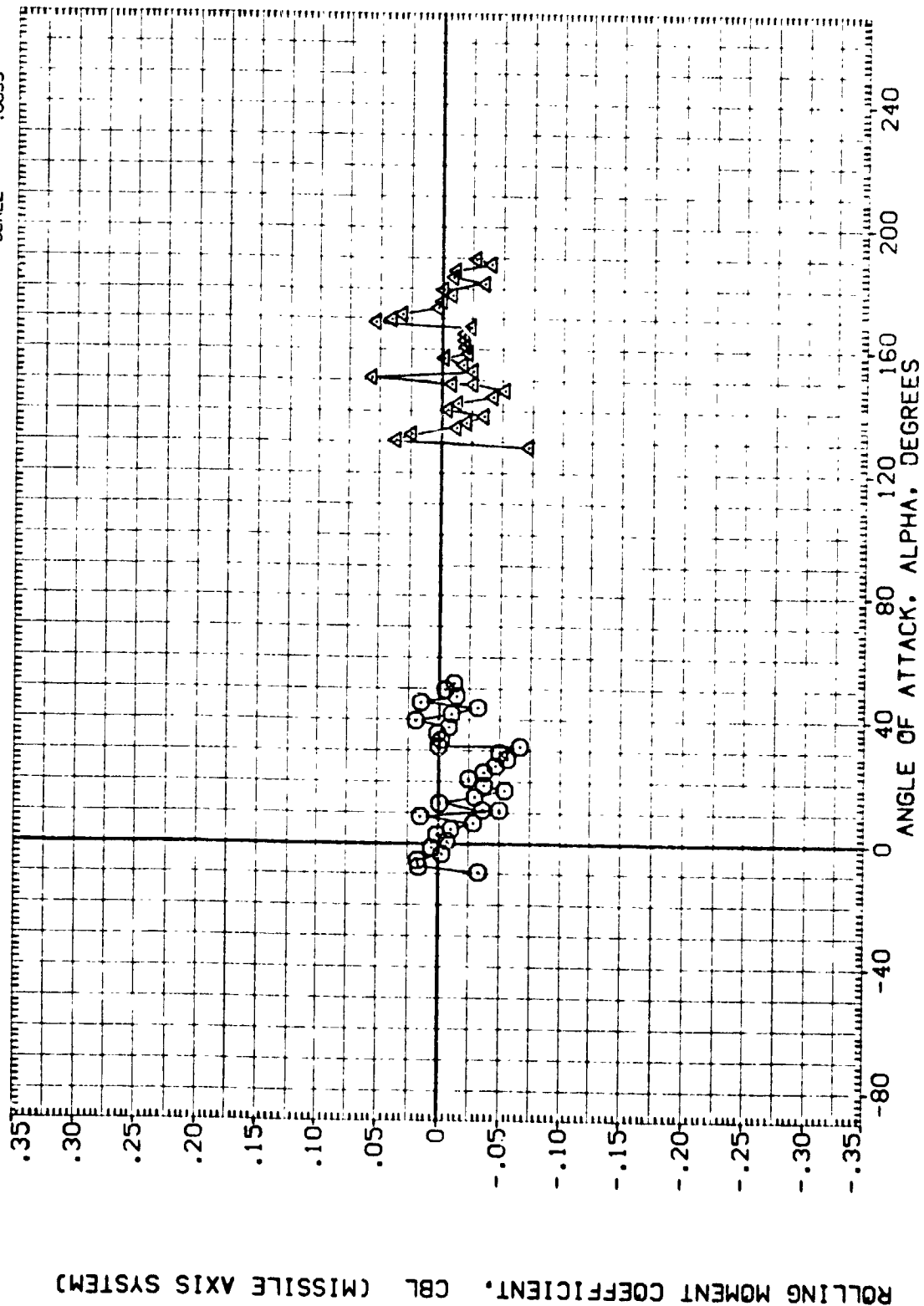


FIGURE 19. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 0)

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	45.000	XREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

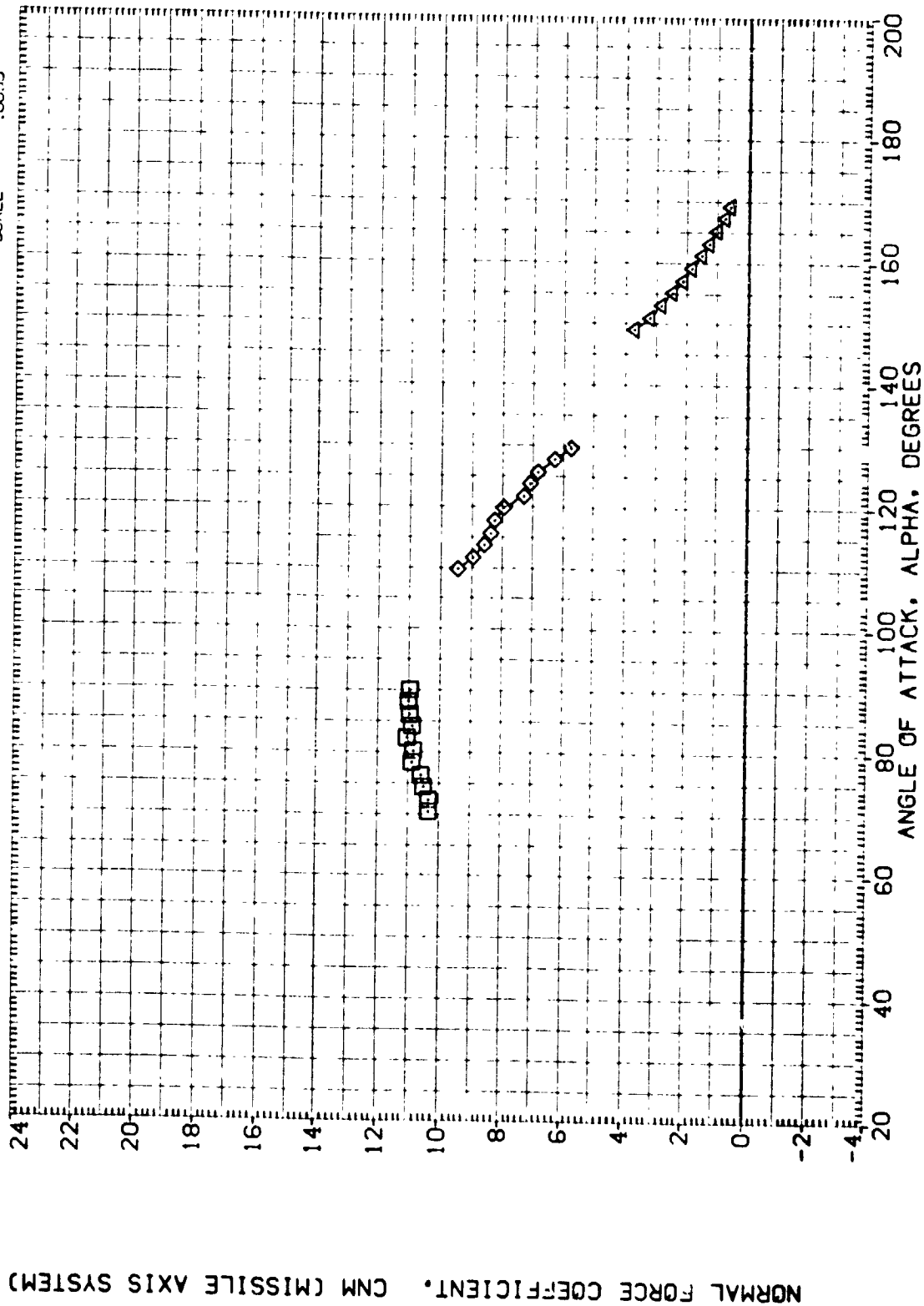


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H004)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

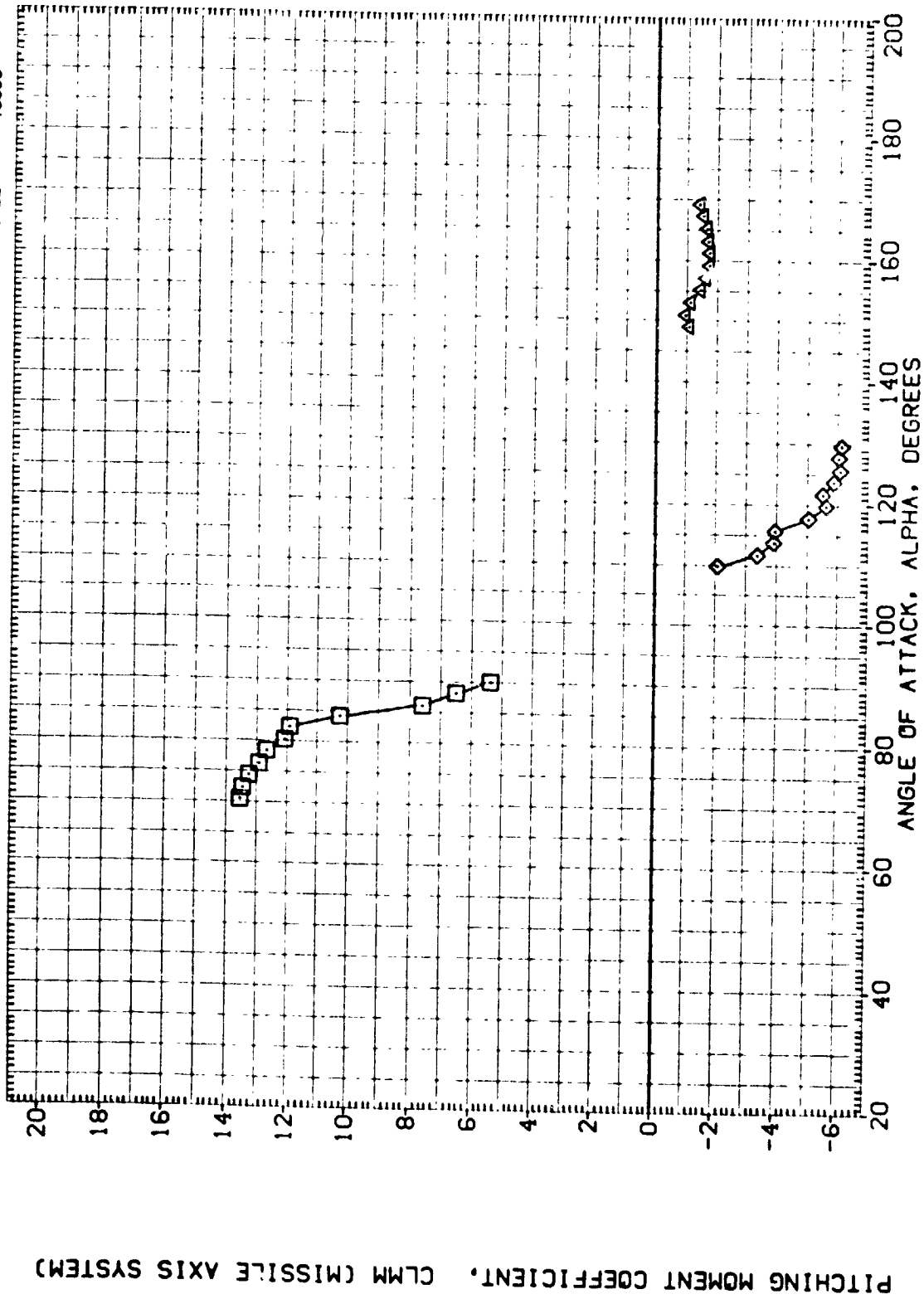


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 IN.
(A1H034)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

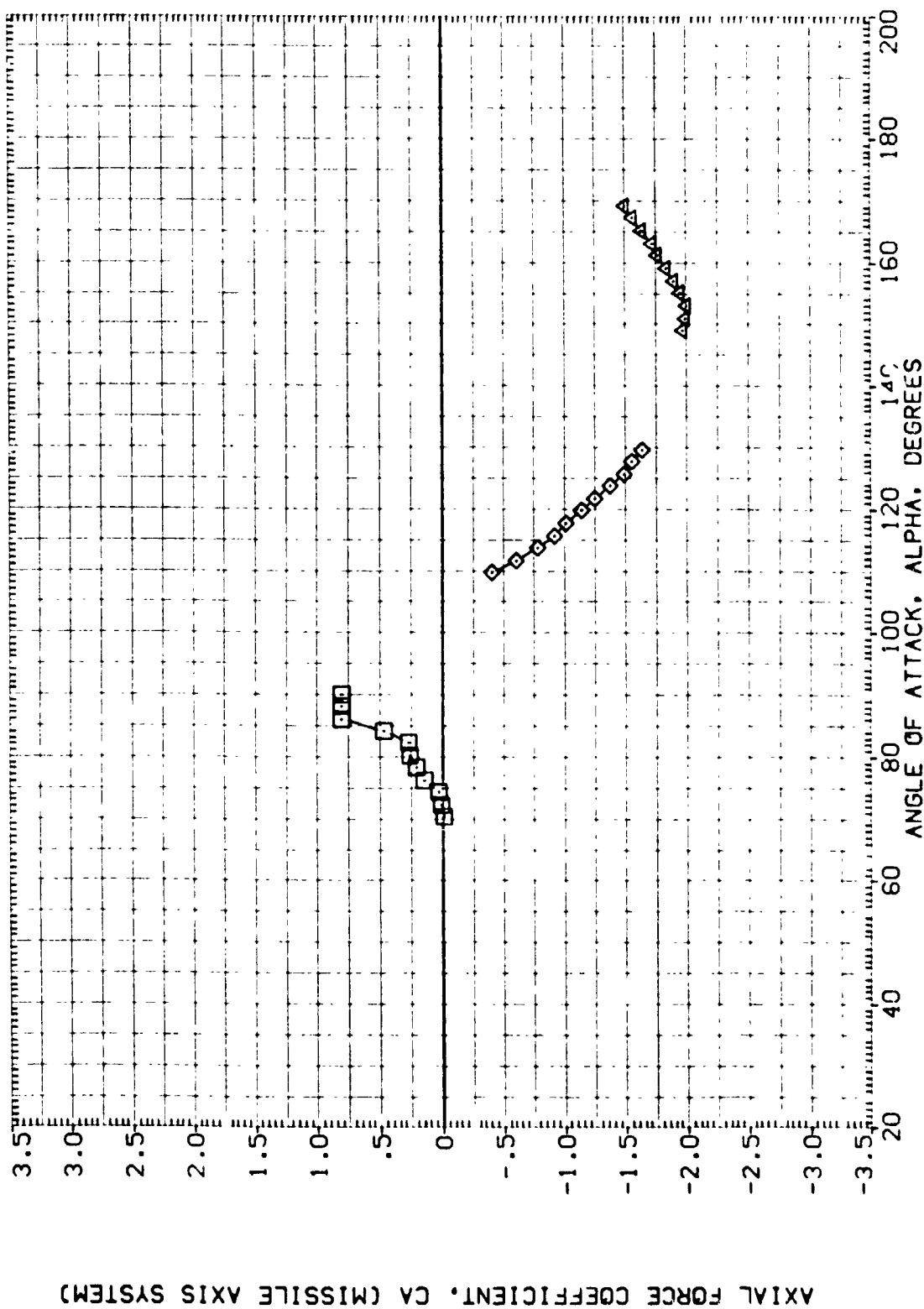


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5000 50. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XHRP 5.7210 IN. XS
			YHRP .0000 IN. YS
			ZHRP .0000 IN. ZS
			SCALE .0055

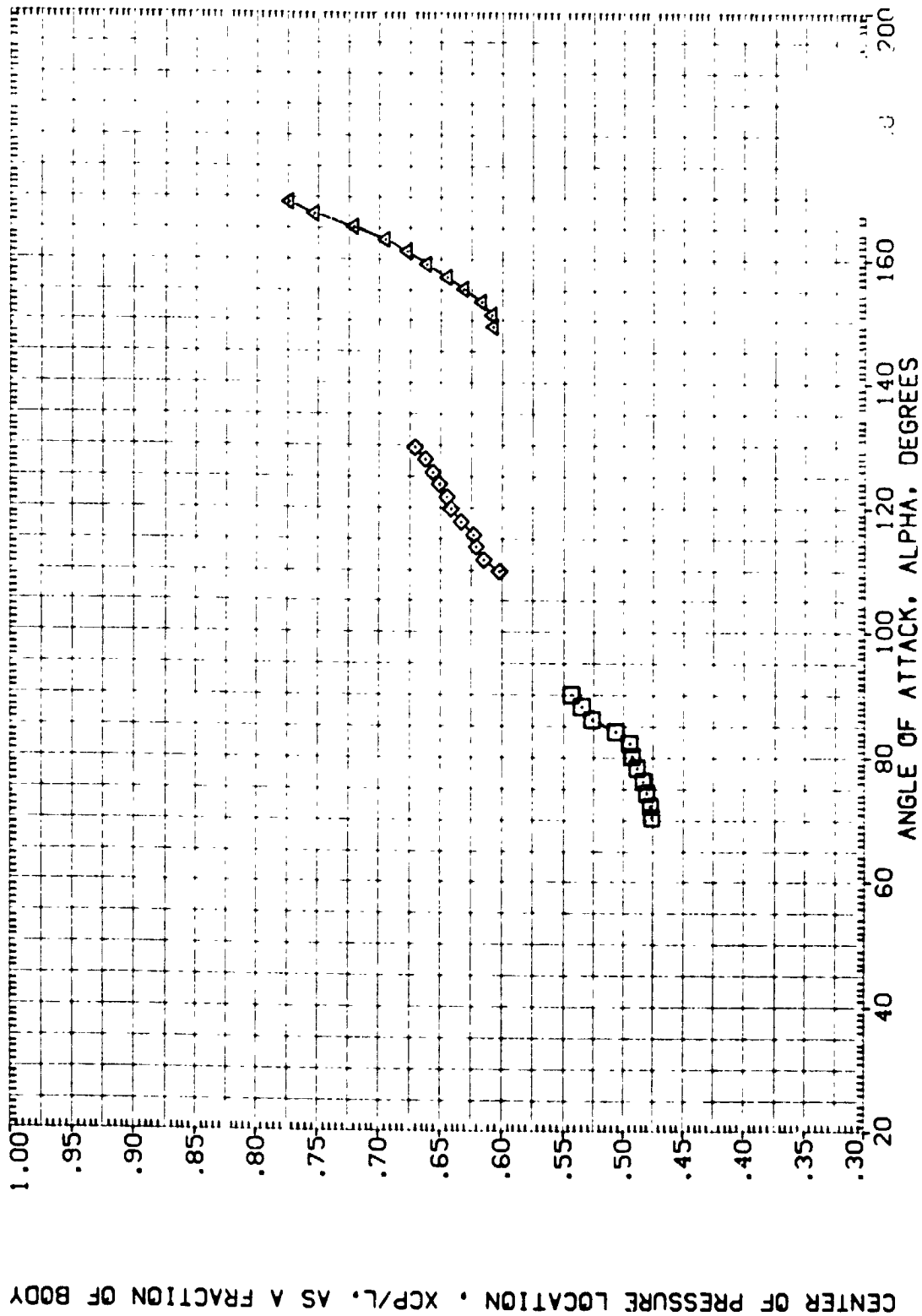


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 45)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ.IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

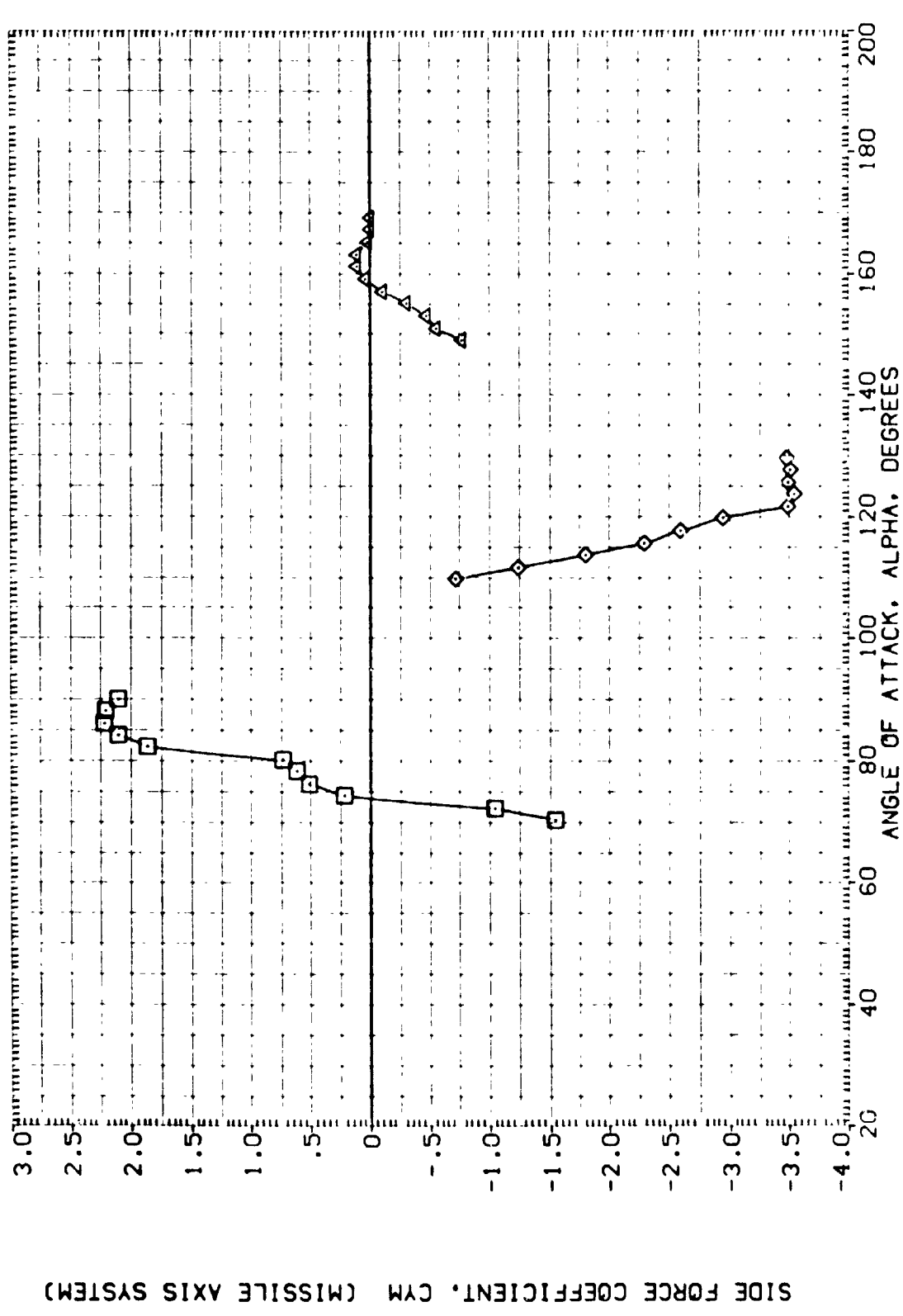


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XPRP 5.7210 IN.
			YPRP .0000 IN.
			ZPRP .0000 IN.
			SCALE .0055

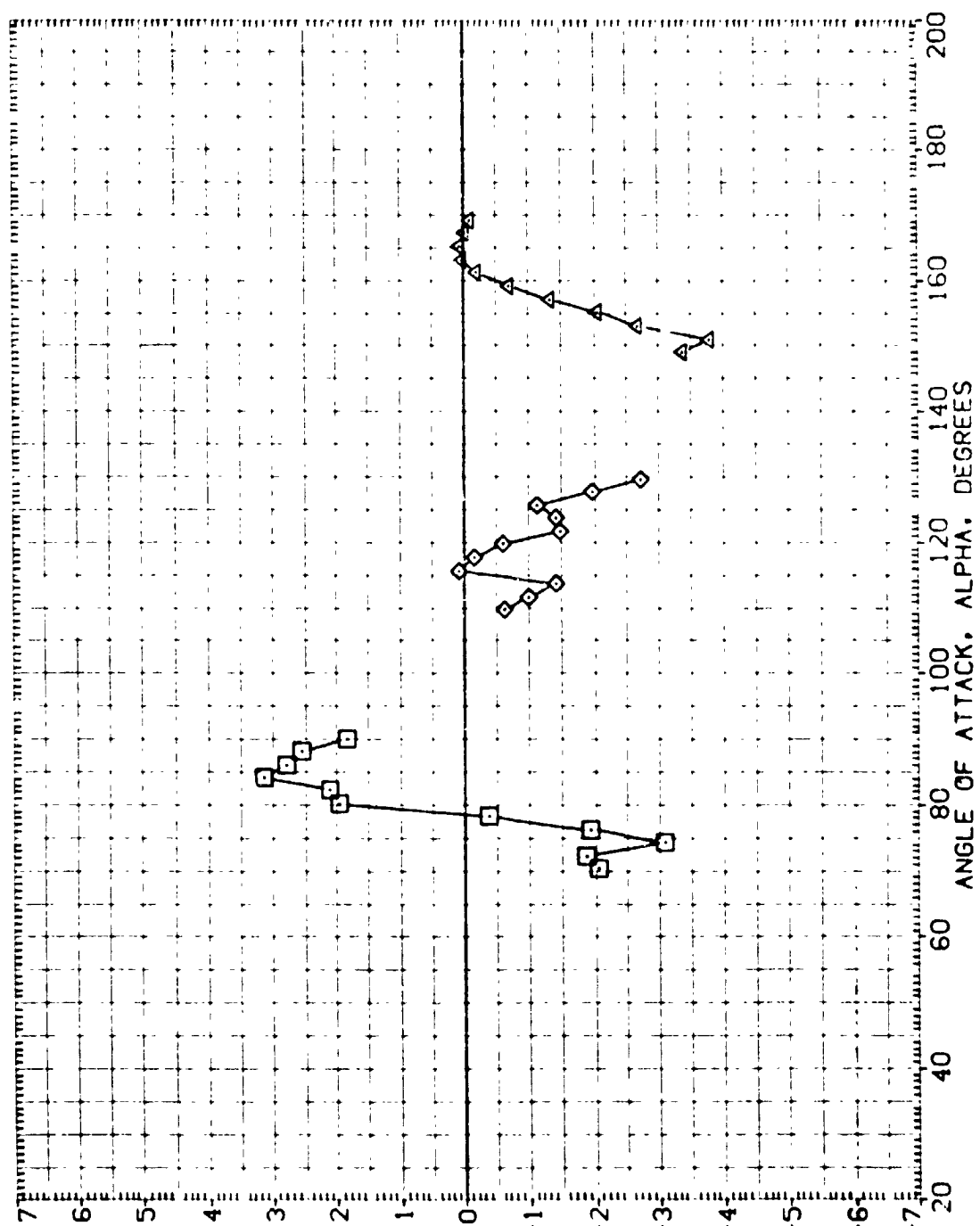


FIGURE 20. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 45)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SKCF .5030 SG.IN.
(A1H034)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

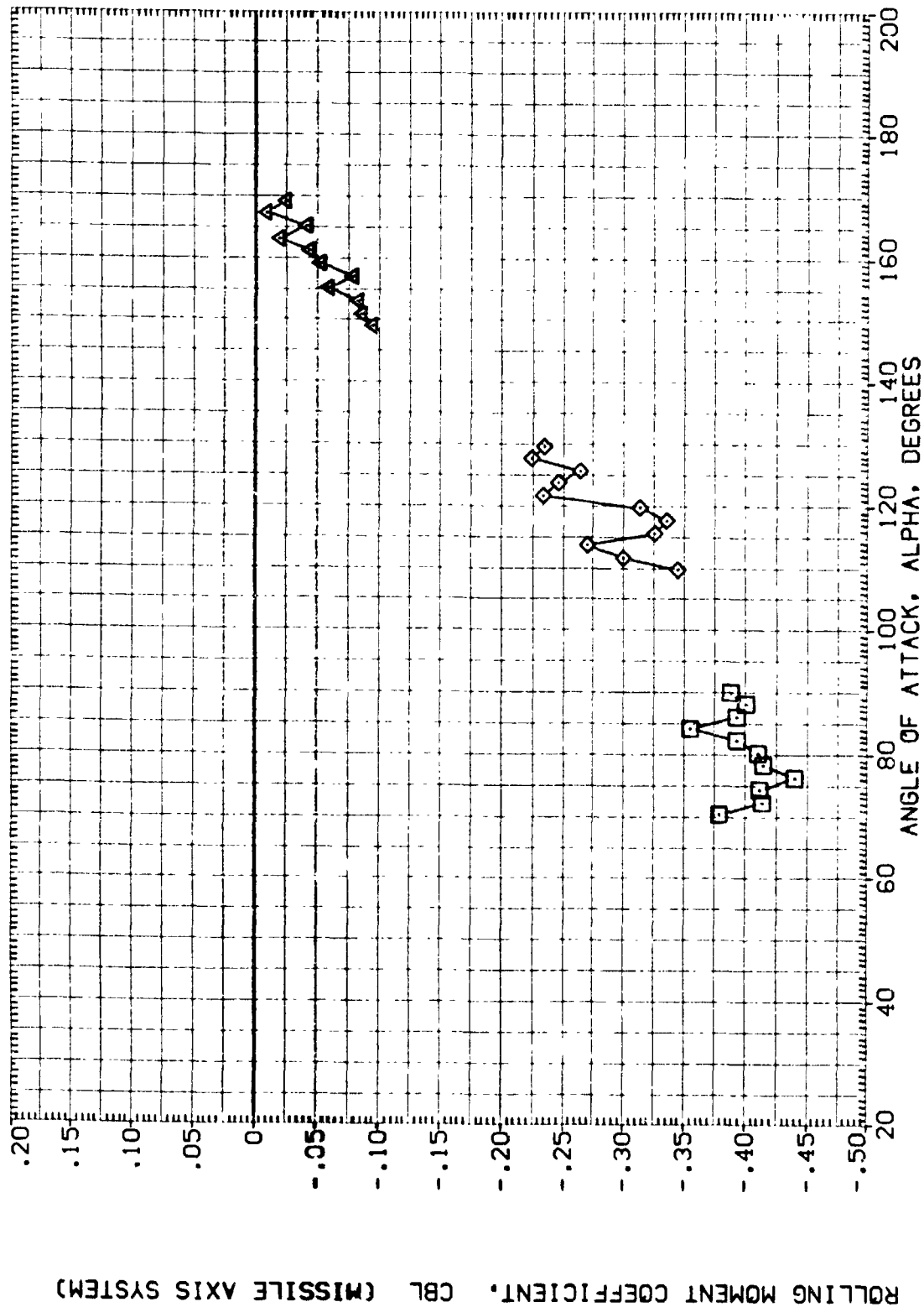


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H004) DATA NOT AVAILABLE  
 (A1H004) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H005) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H006) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 45.000  
 45.000  
 45.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

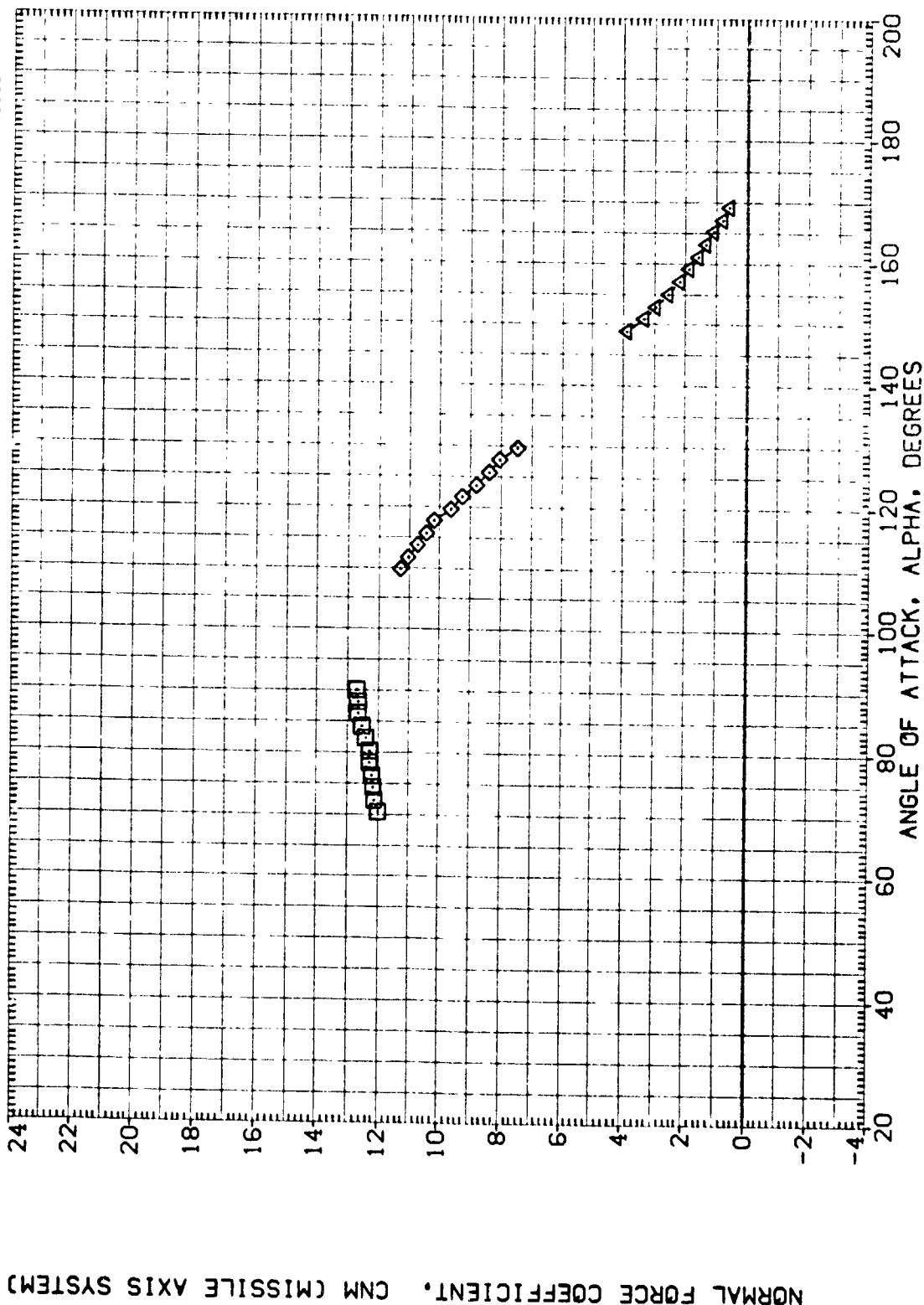


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B)MACH = .60

BERANCES  
BERANCES  
BERANCES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A1H04)	DATA NOT AVAILABLE
(A1H034)	*SEC TV1604 (SABF) SR8 WITH
(A1H035)	*SEC TV1604 (SABF) SR8 WITH
(A1H036)	*SEC TV1604 (SABF) SR8 WITH

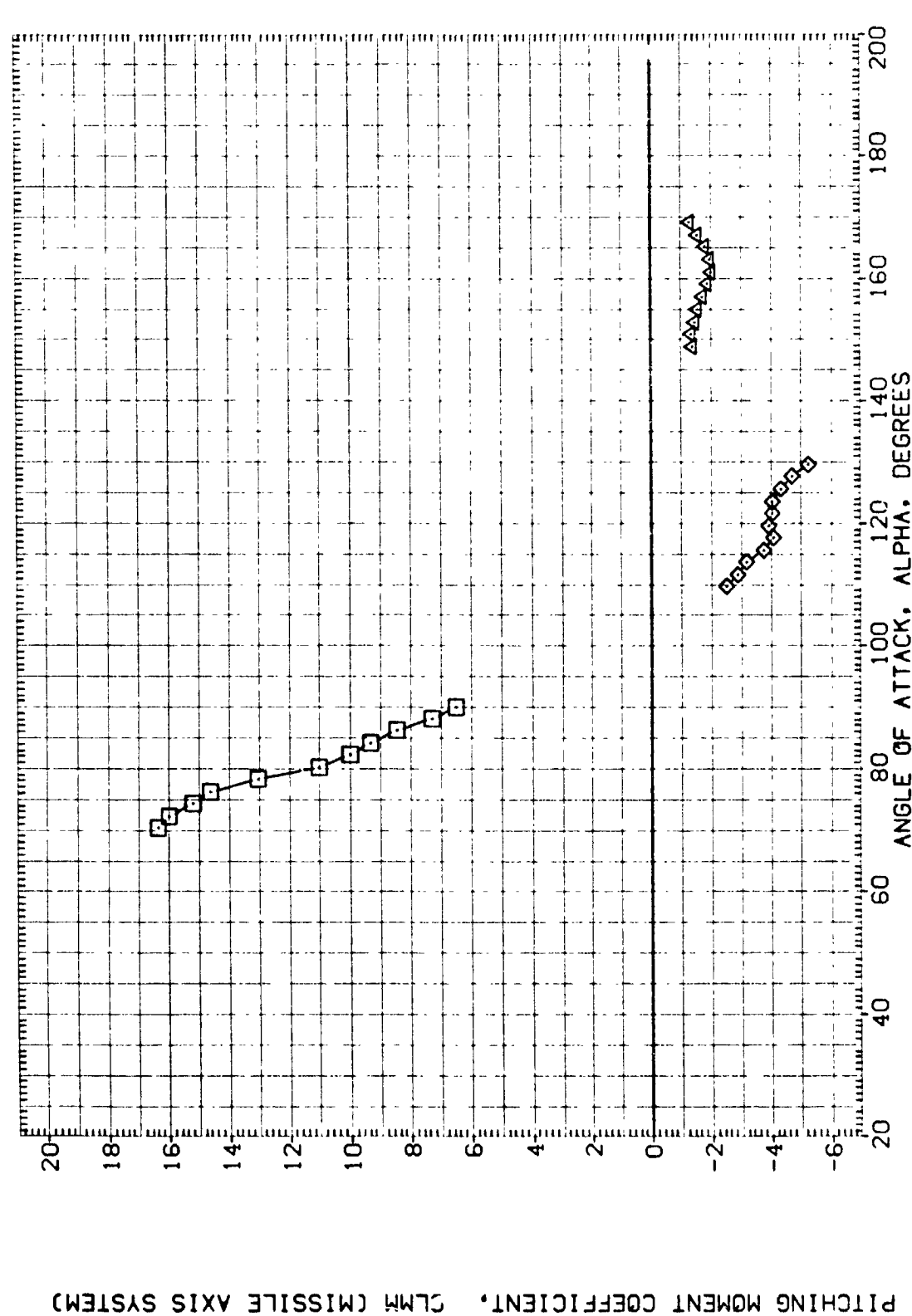


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\text{PHI} = 45^\circ$ )



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

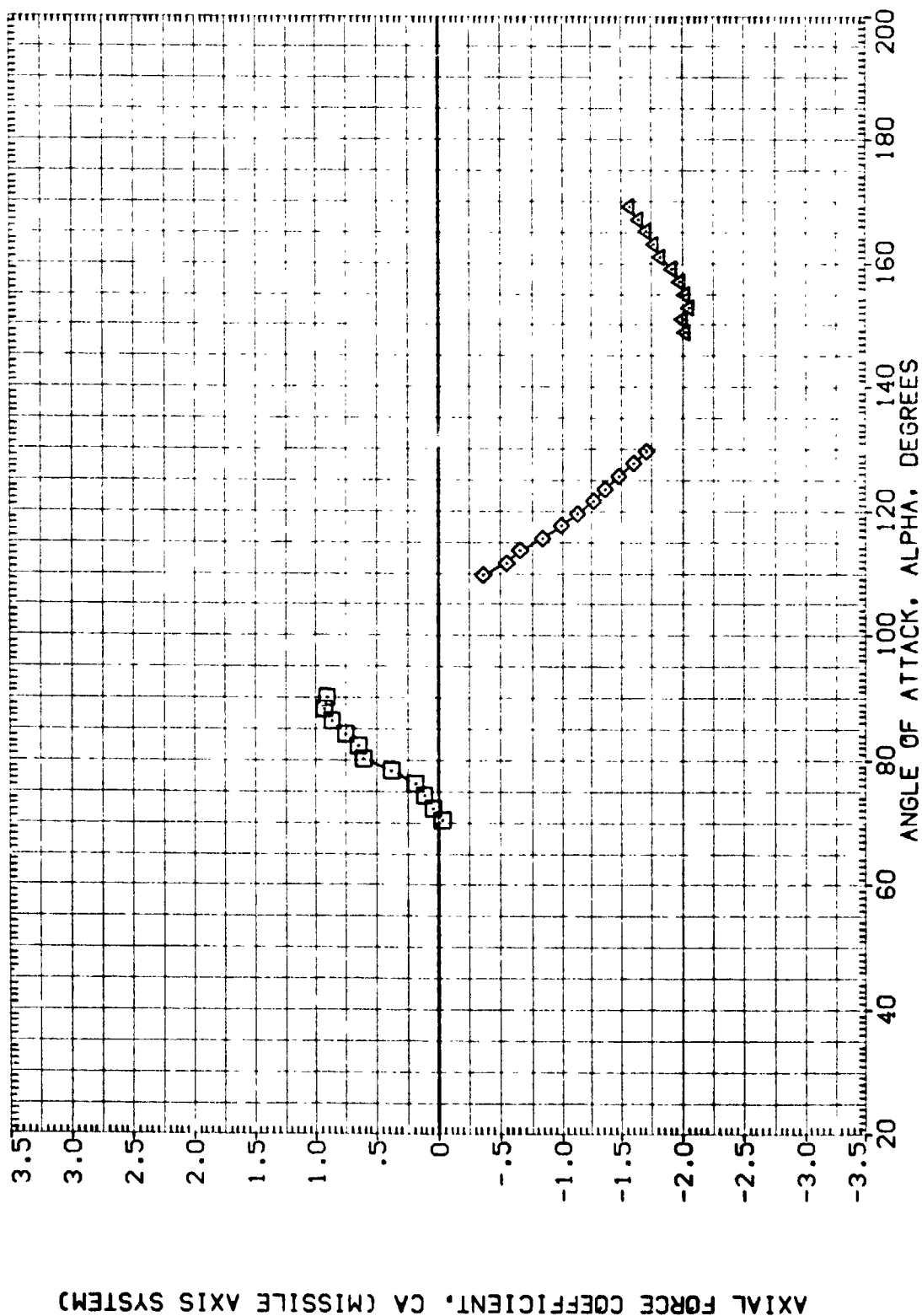


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B) MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H004)      DATA NOT AVAILABLE

(A1H034)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H035)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H036)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

45.000

45.000

45.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP .7210 IN.

YMRP .0000 IN.

ZMRP .0000 IN.

SCALE .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

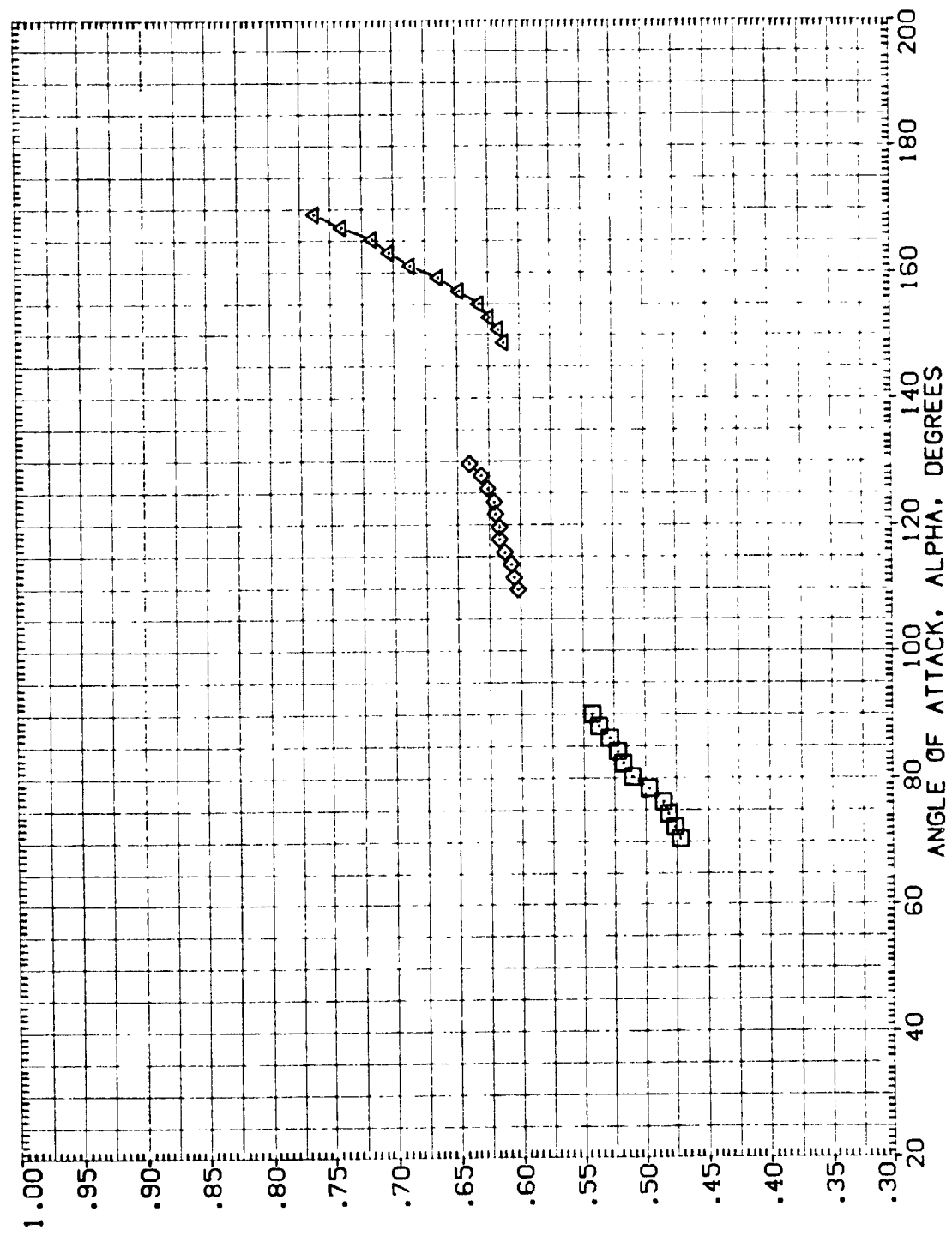


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B)MACH = .60

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 50. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN. XS
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP 5.7210 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

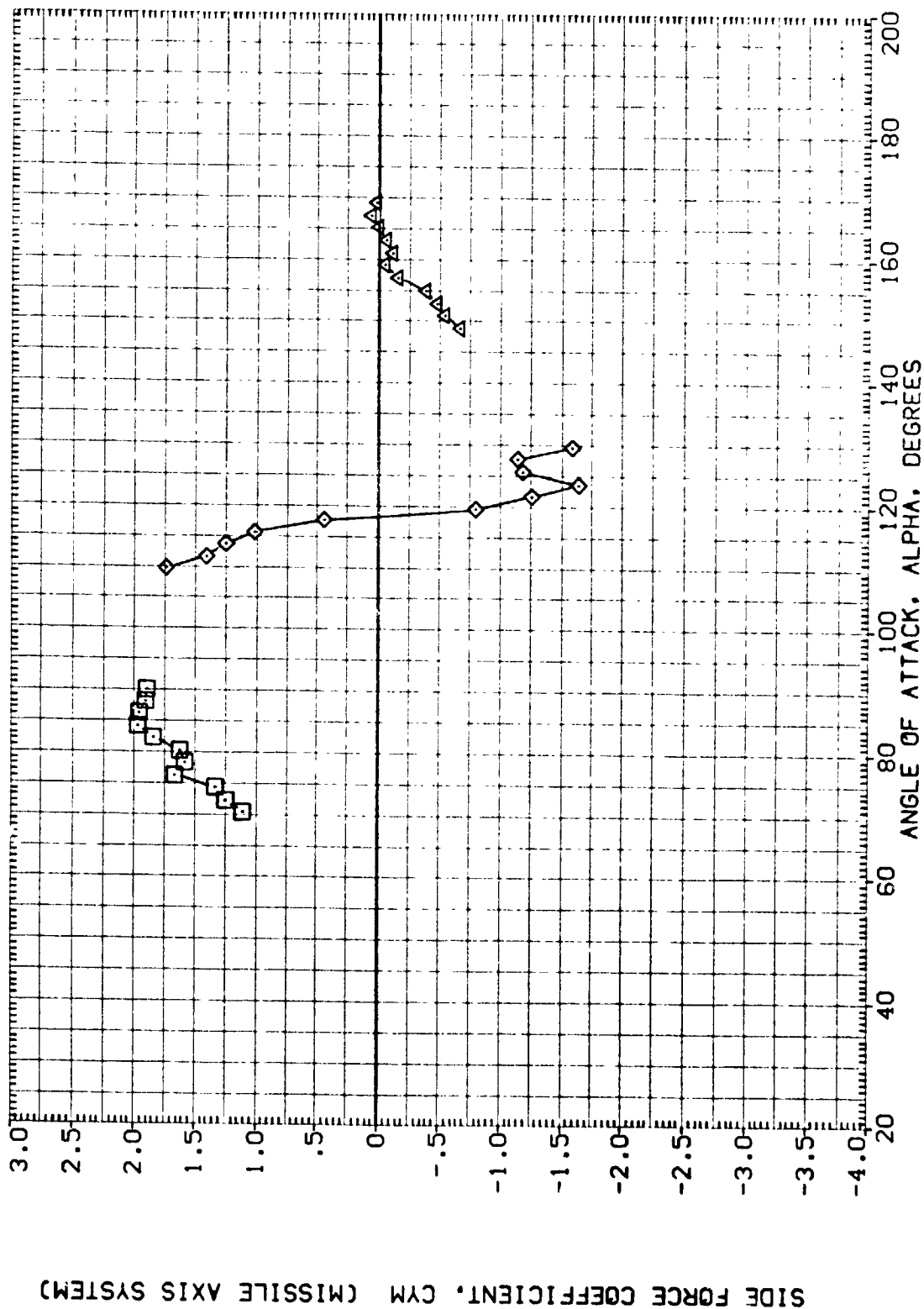


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B) MACH = .60

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 IN.
(A1H034)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

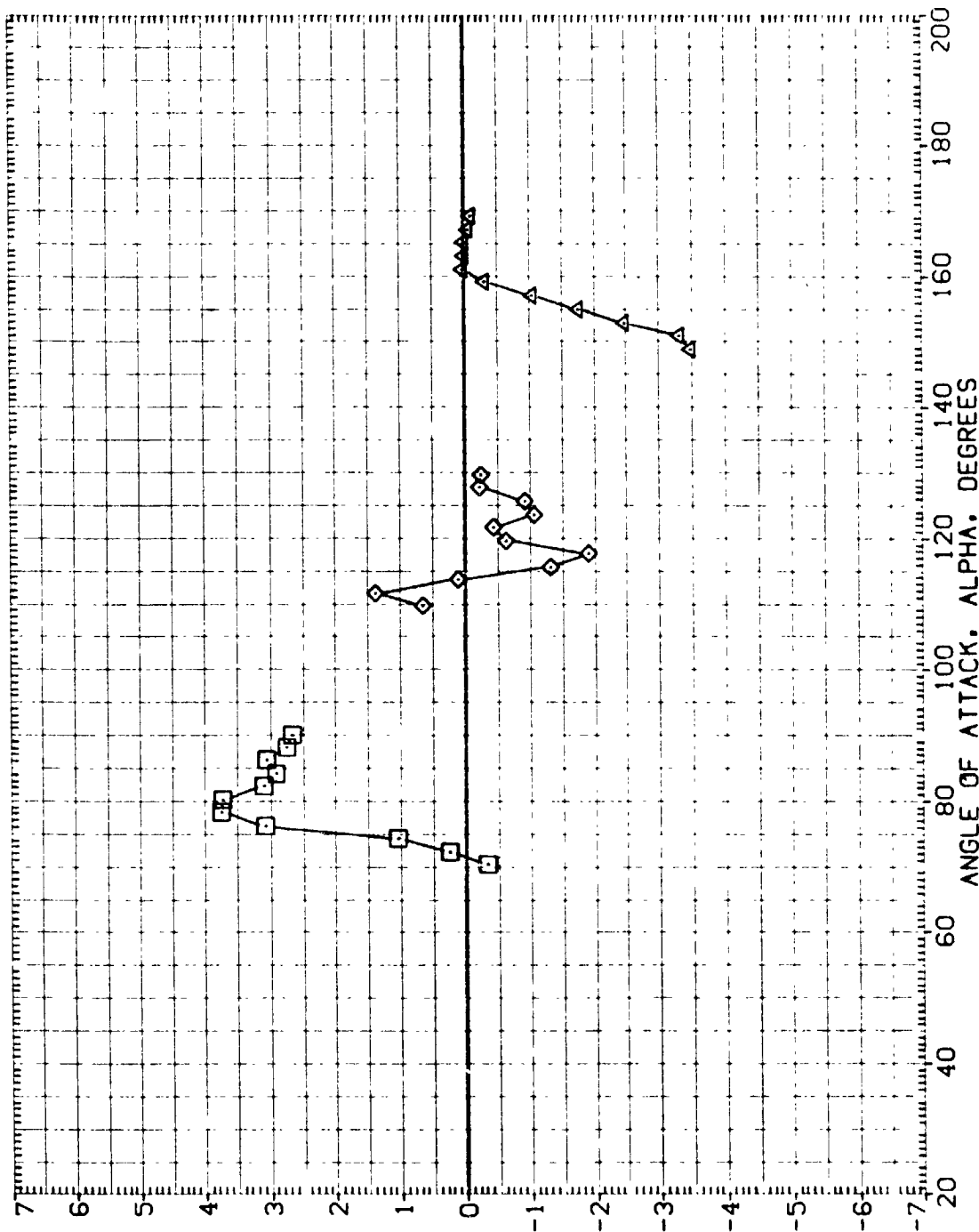


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B)M CH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H004)      DATA NOT AVAILABLE      45.000

(A1H034)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(A1H035)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(A1H036)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

SREF      5030      50. IN.

LREF      8000      IN.

BREF      9000      IN.

XRRP      5.7210      IN. XS

YRRP      .0000      IN. YS

ZRRP      .0000      IN. ZS

SCALE      .0055

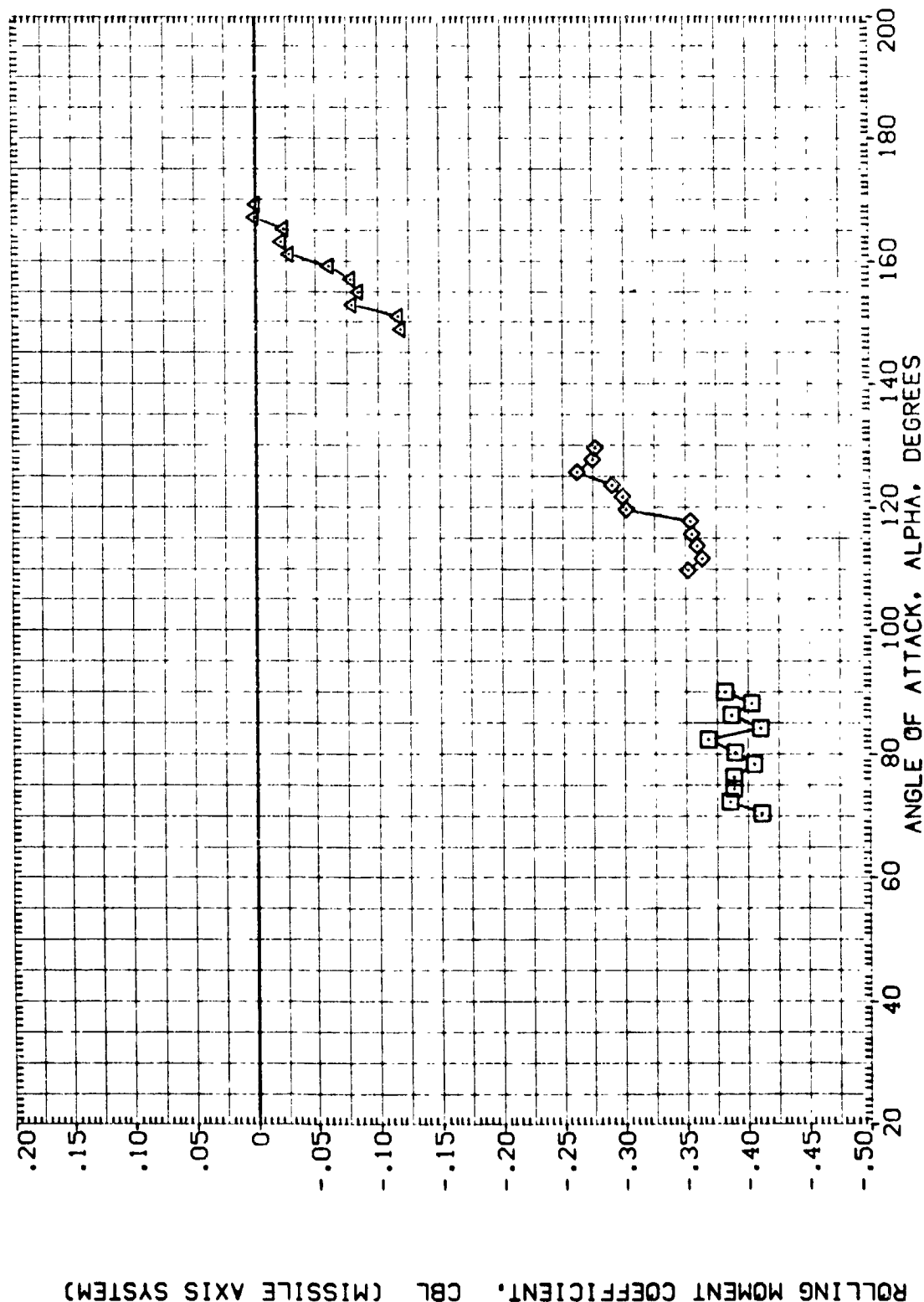


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF 5.7210 IN. XS
(A1H036)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

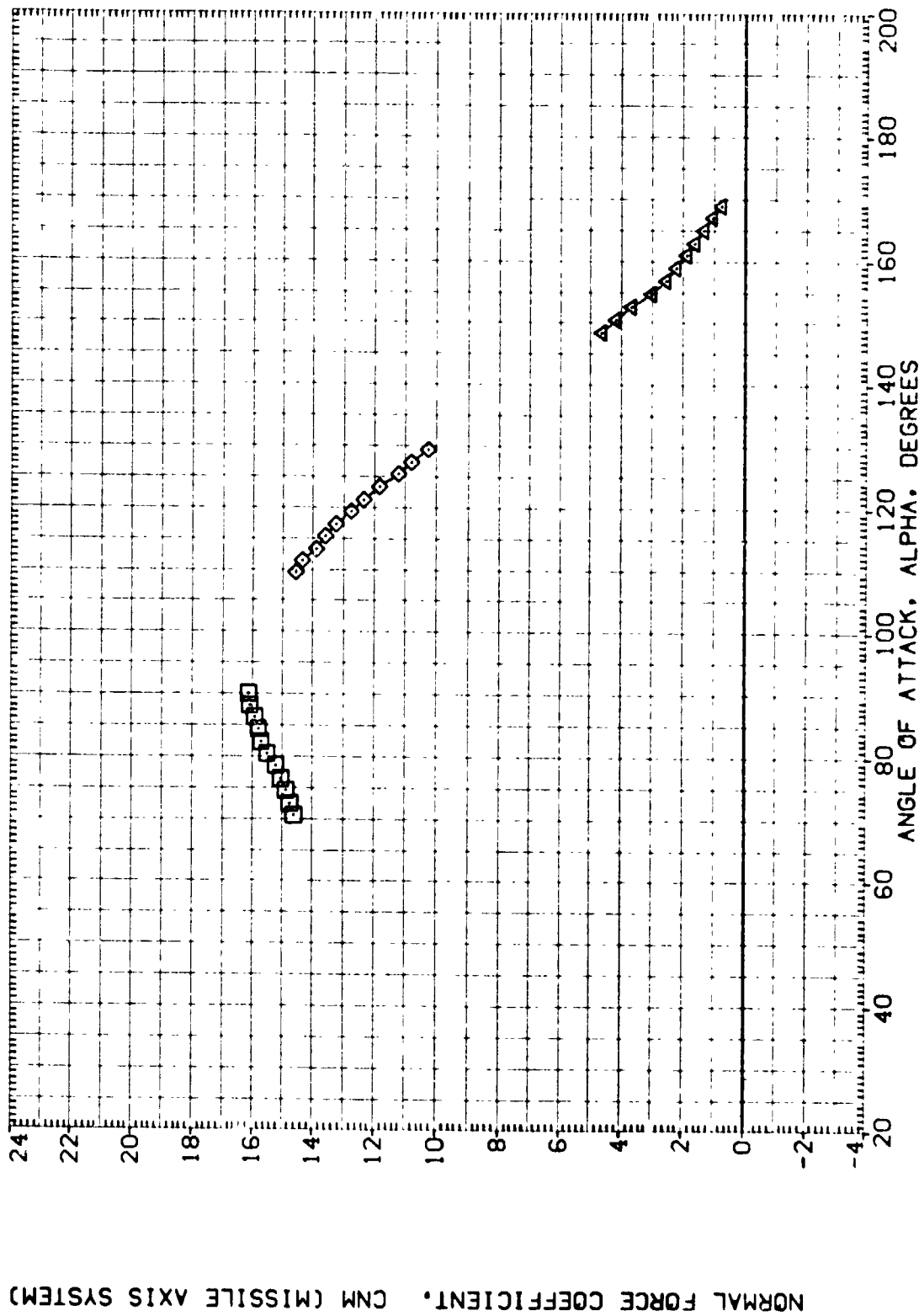


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H404)      DATA NOT AVAILABLE

(A1H404)      MSFC TV1604 (SAB) SRB WITH ALL PROTUBERANCES

(A1H405)      MSFC TV1604 (SAB) SRB WITH ALL PROTUBERANCES

(A1H406)      MSFC TV1604 (SAB) SRB WITH ALL PROTUBERANCES

PHI

45.000

45.000

45.000

REFERENCE INFORMATION

SREF      5030      50. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN.

YMRP      .0000      IN.

ZMRP      .0000      IN.

SCALE      .0055      IN.

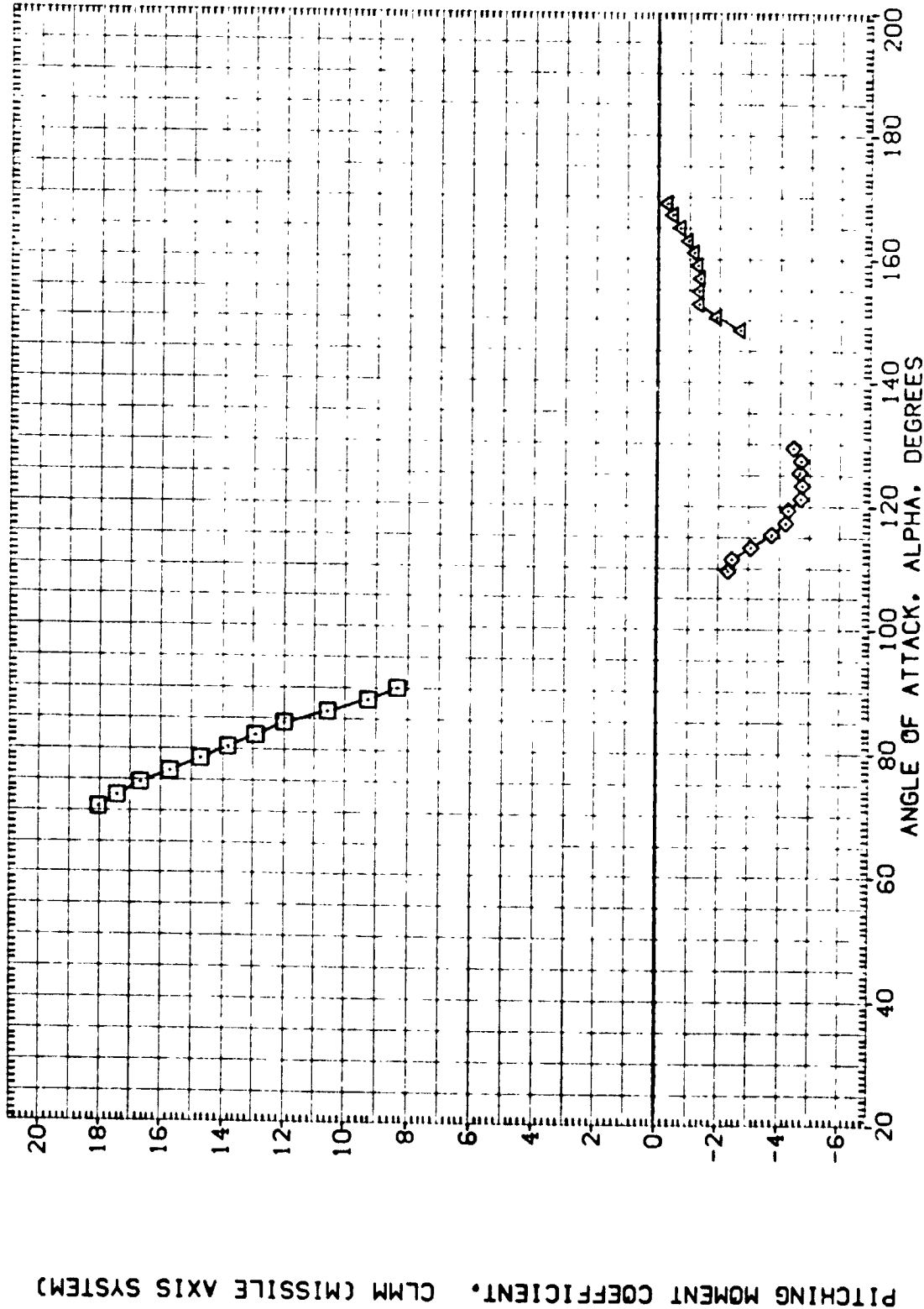


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90

REFERENCE INFORMATION

SREF	5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

45.000
45.000
45.000
45.000

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(AIH004)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(AIH034)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH035)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH036)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

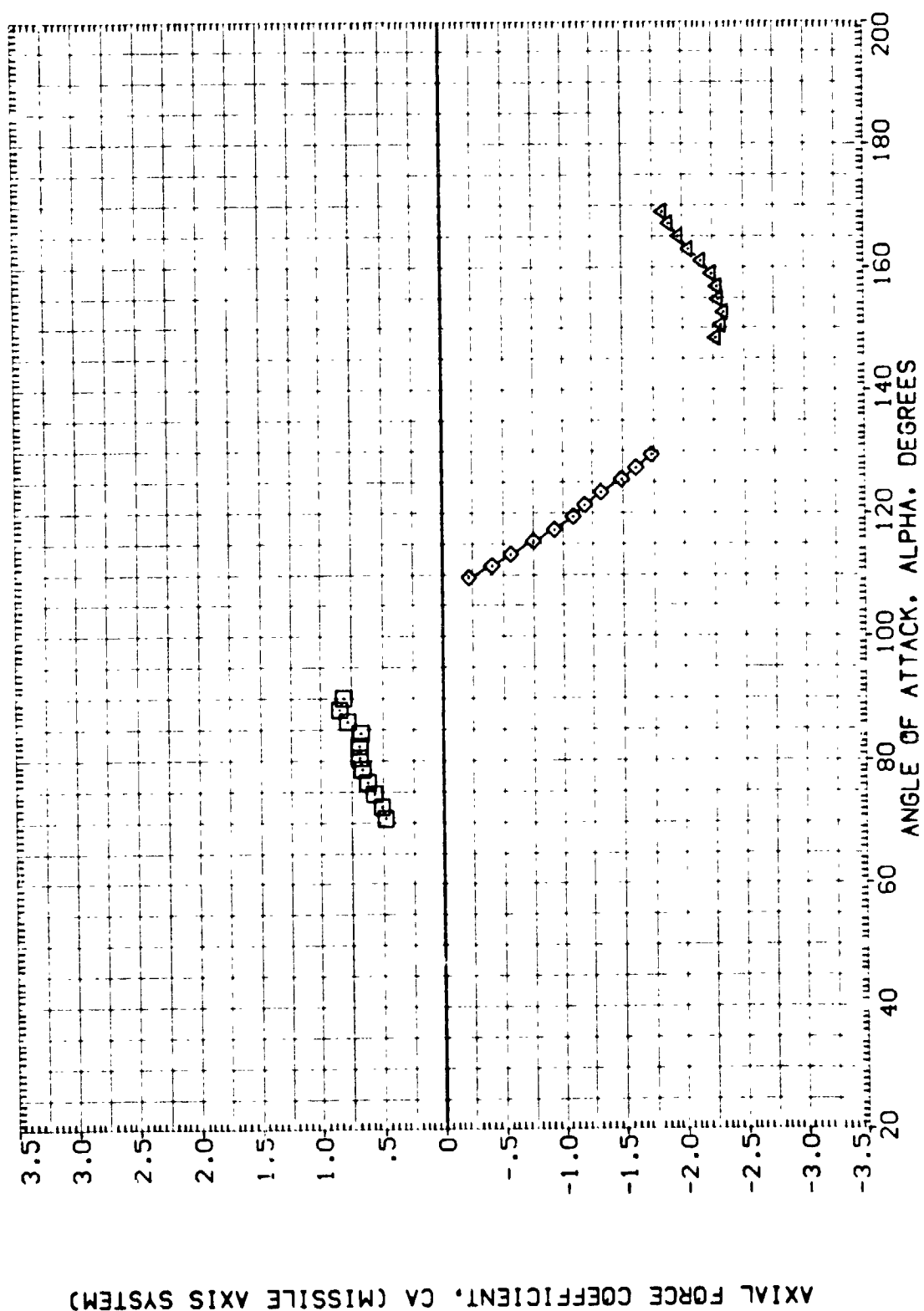


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90



DATA SET SYMBOL: (AIH034) (AIH035) (AIH036)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI: 45.000 45.000 45.000

REFERENCE INFORMATION: SREF 5000 50. IN. LREF 8000 80. IN. BREF 8000 80. IN. XMRP 5.7210 IN. XS YMRP 0.0000 IN. YS ZMRP 0.0000 IN. ZS SCALE 0.0055

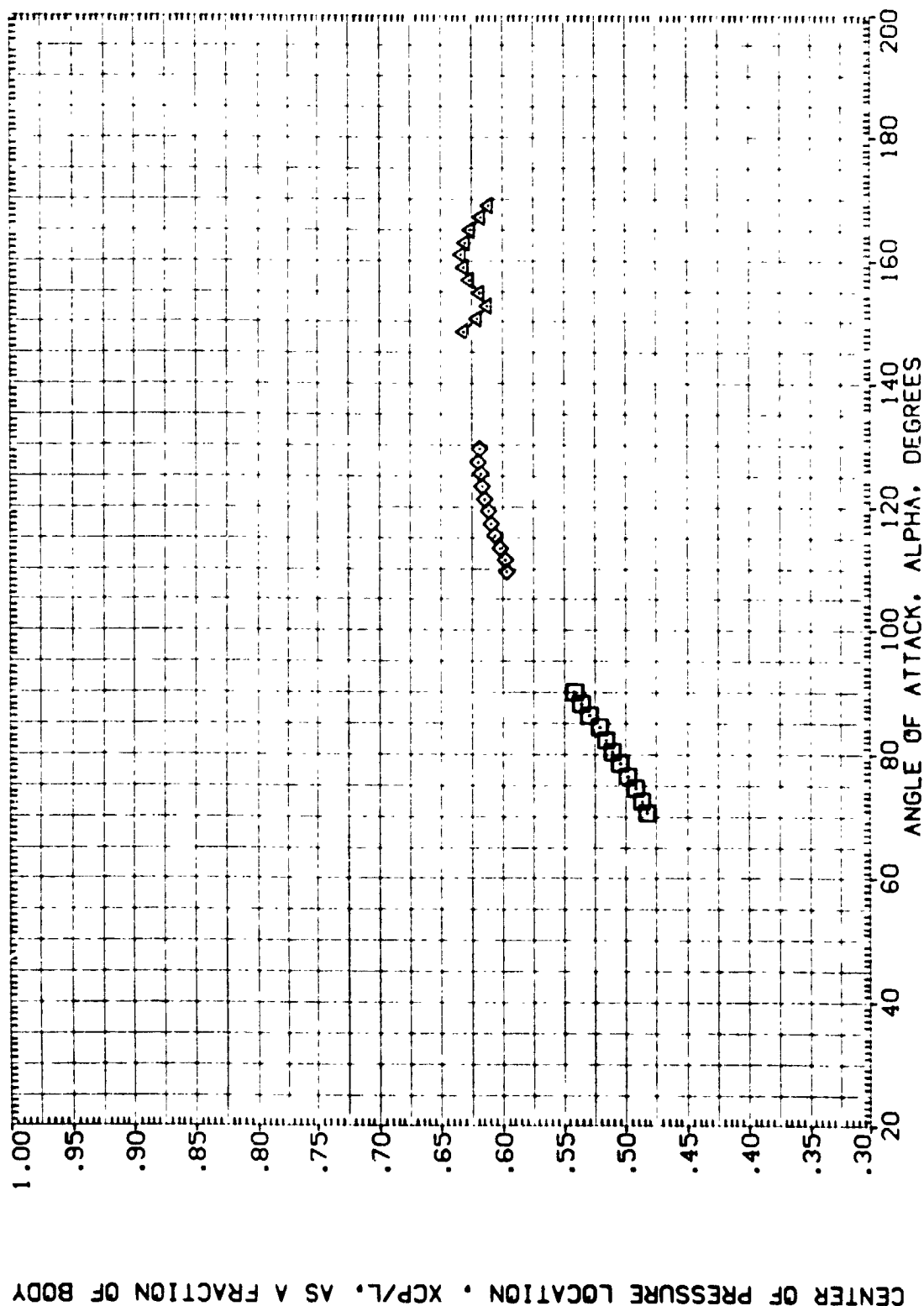


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\Phi = 45^\circ$ )

(C)MACH = .90

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

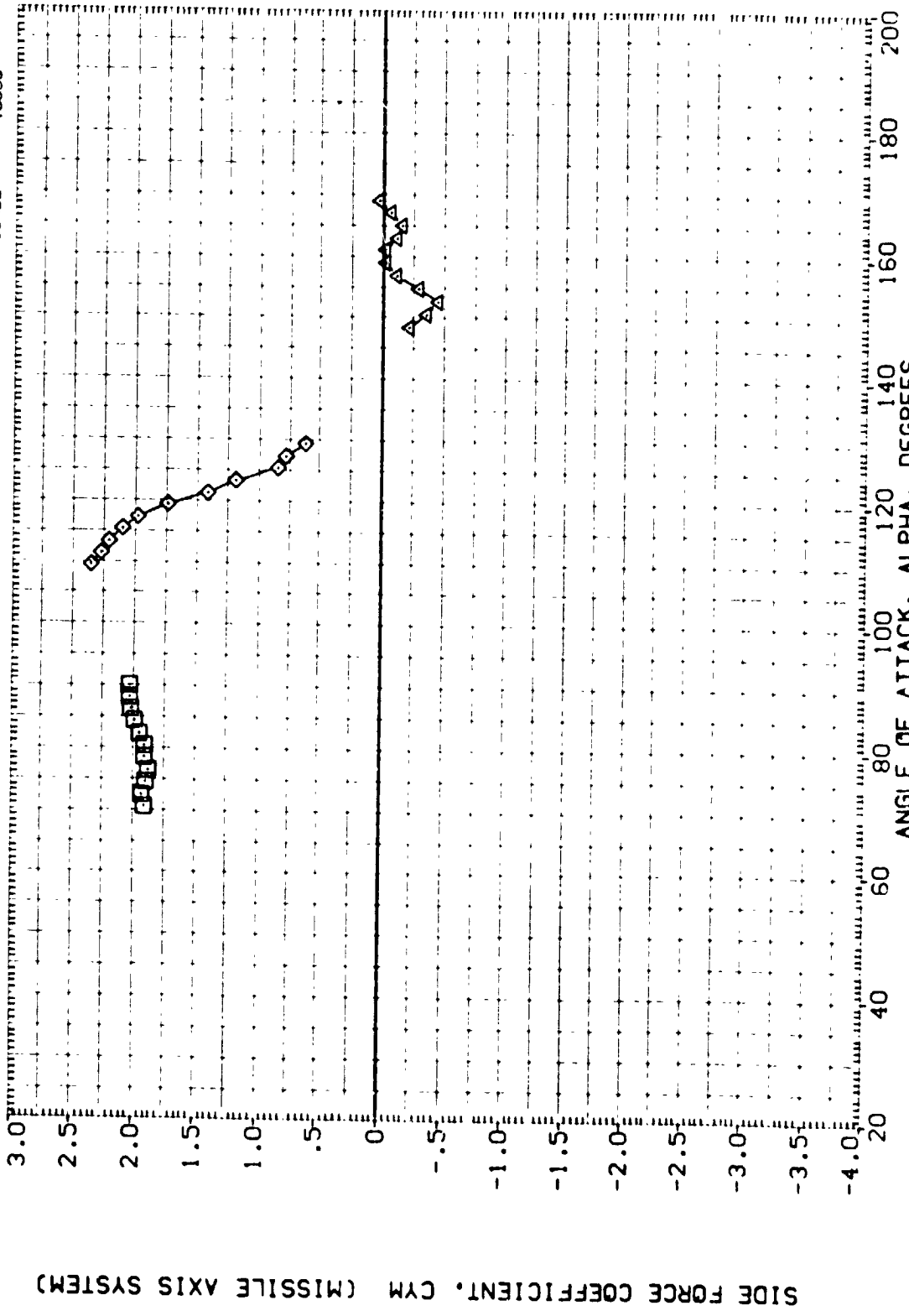


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(AIH004)    DATA NOT AVAILABLE    45.000    SREF    5030    50. IN.

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    LREF    8000    IN.

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    BREF    8000    IN.

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    XTRP    5.7210    IN.    XS

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    YTRP    .0000    IN.    YS

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    ZTRP    .0000    IN.    ZS

(AIH004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000    SCALE    .0055

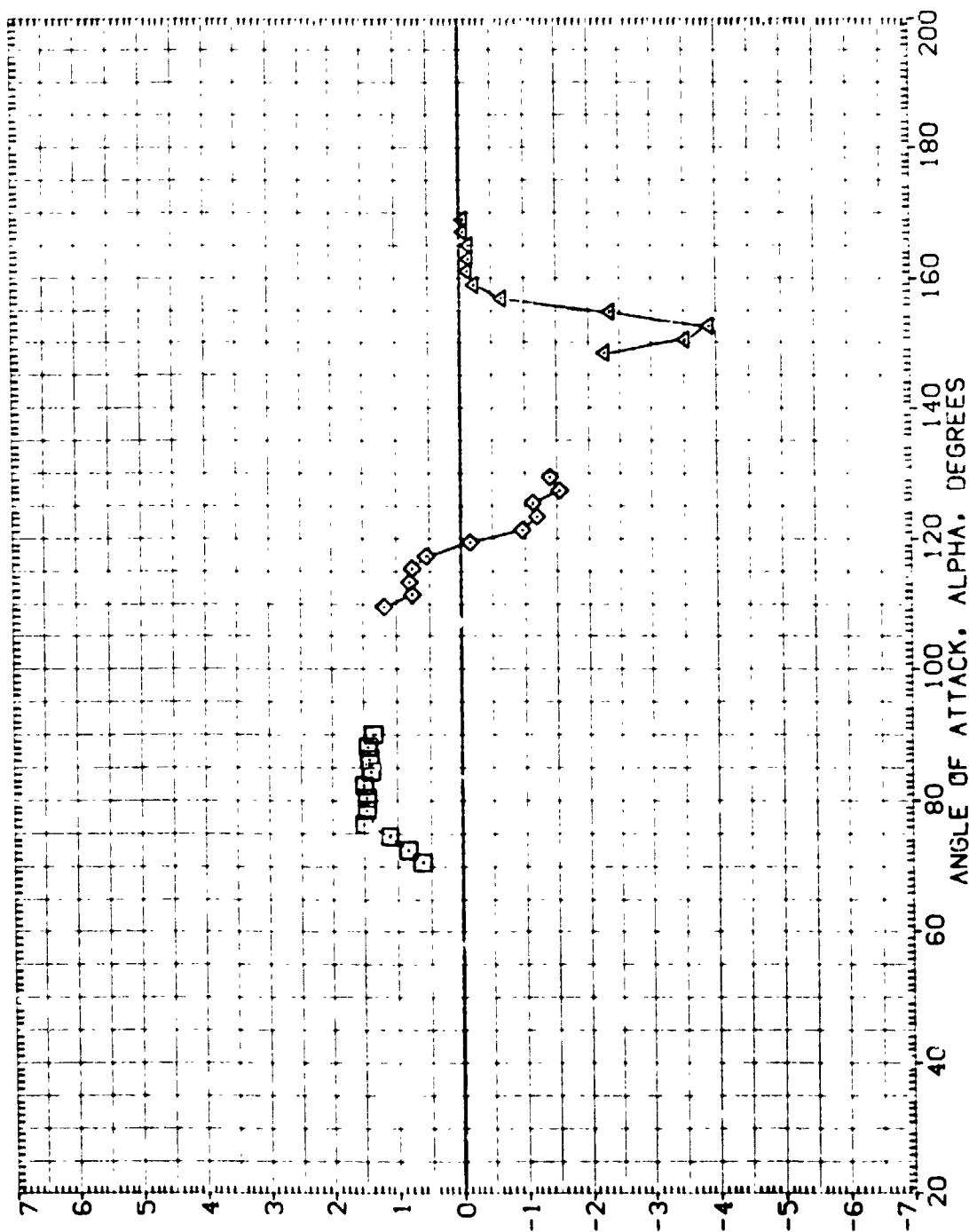


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90

YAWING MOMENT COEFFICIENT, Cym (MISSILE AXIS SYSTEM)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIH04)      DATA NOT AVAILABLE      45.000

(AIH04)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(AIH03)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(AIH03)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

REFERENCE INFORMATION

SREF      5030      IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5.7210      IN.

YMRP      .0000      IN.

ZMRP      .0000      IN.

SCALE      .0055

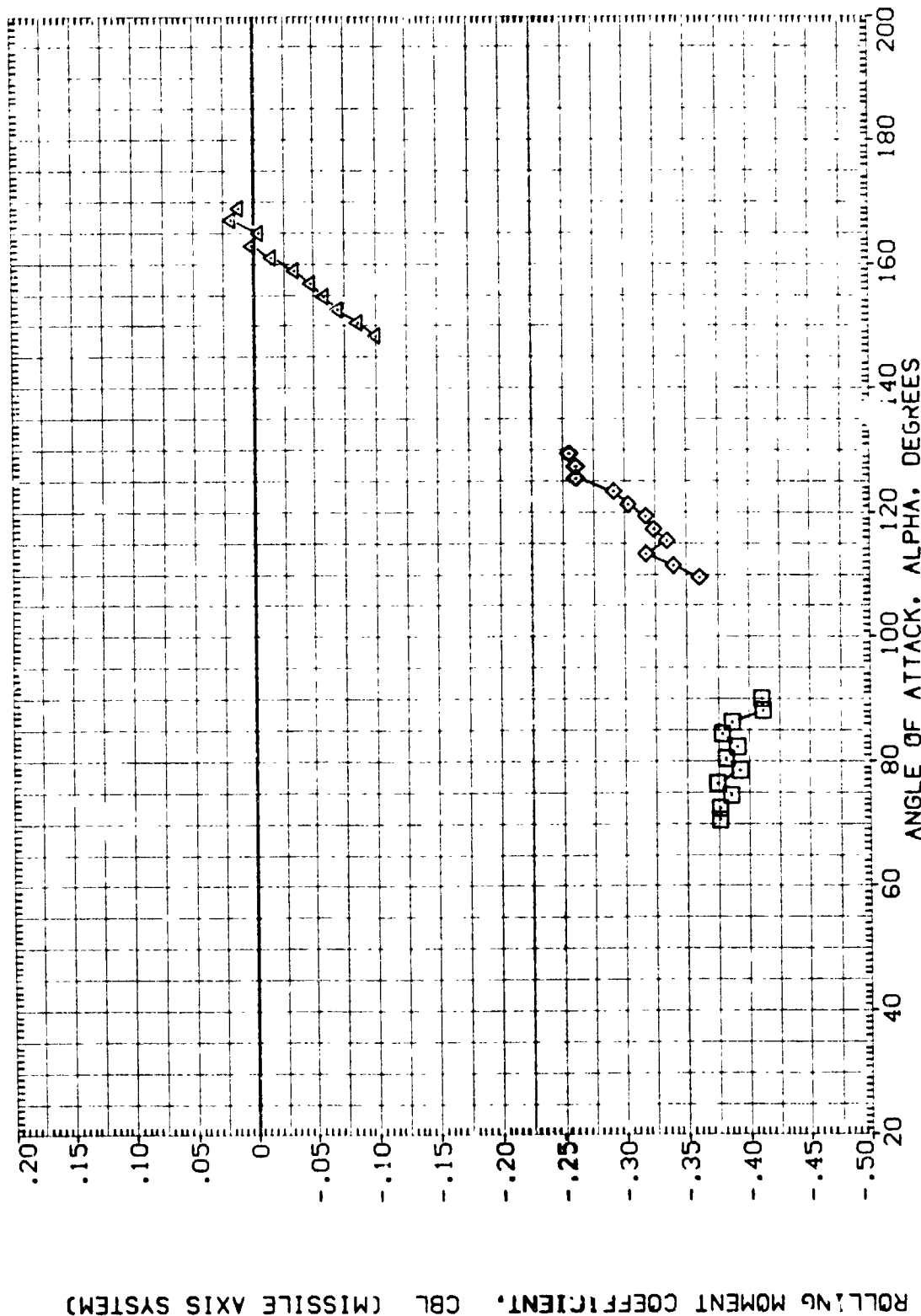


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

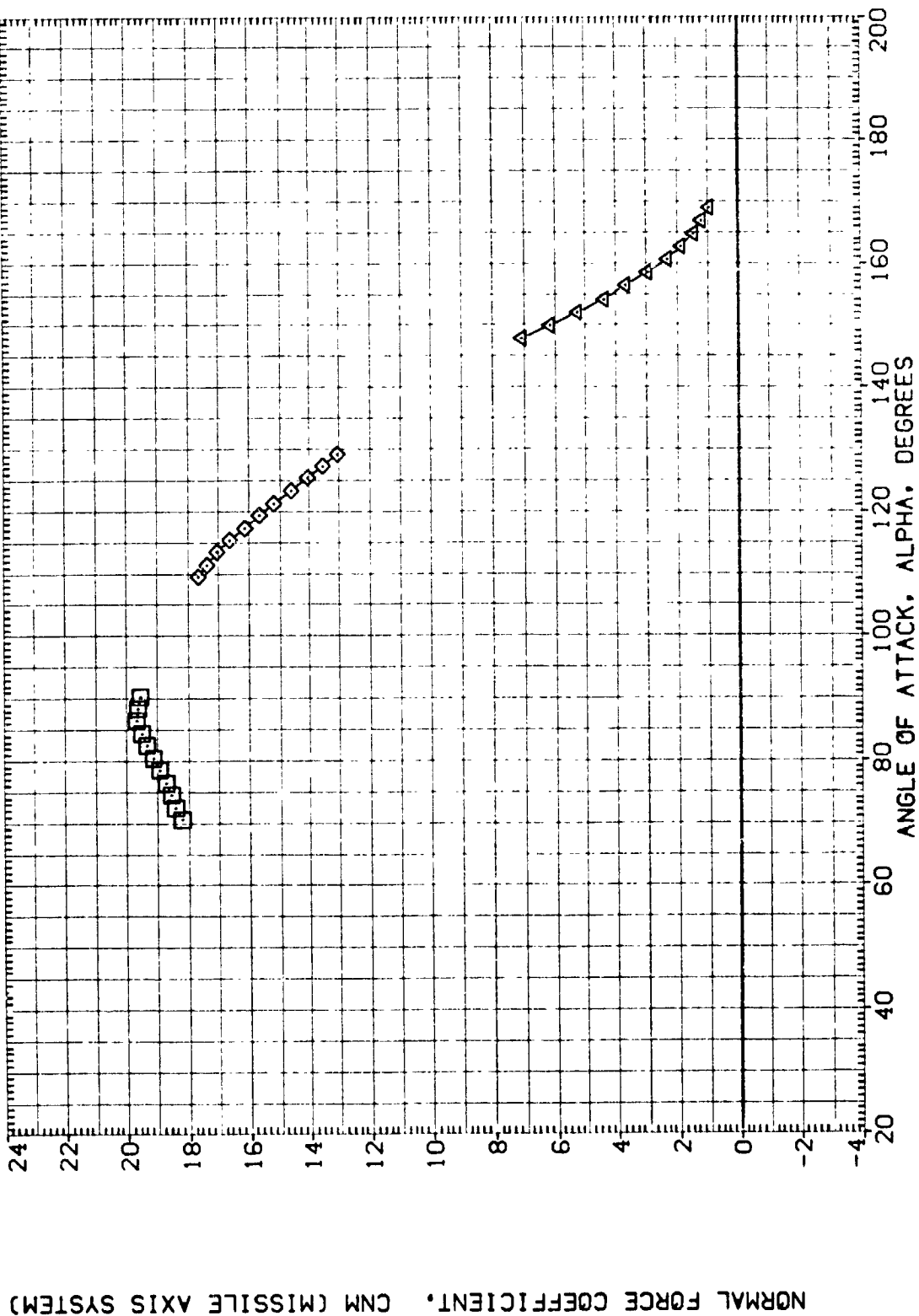


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF 5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF 18000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF 18000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

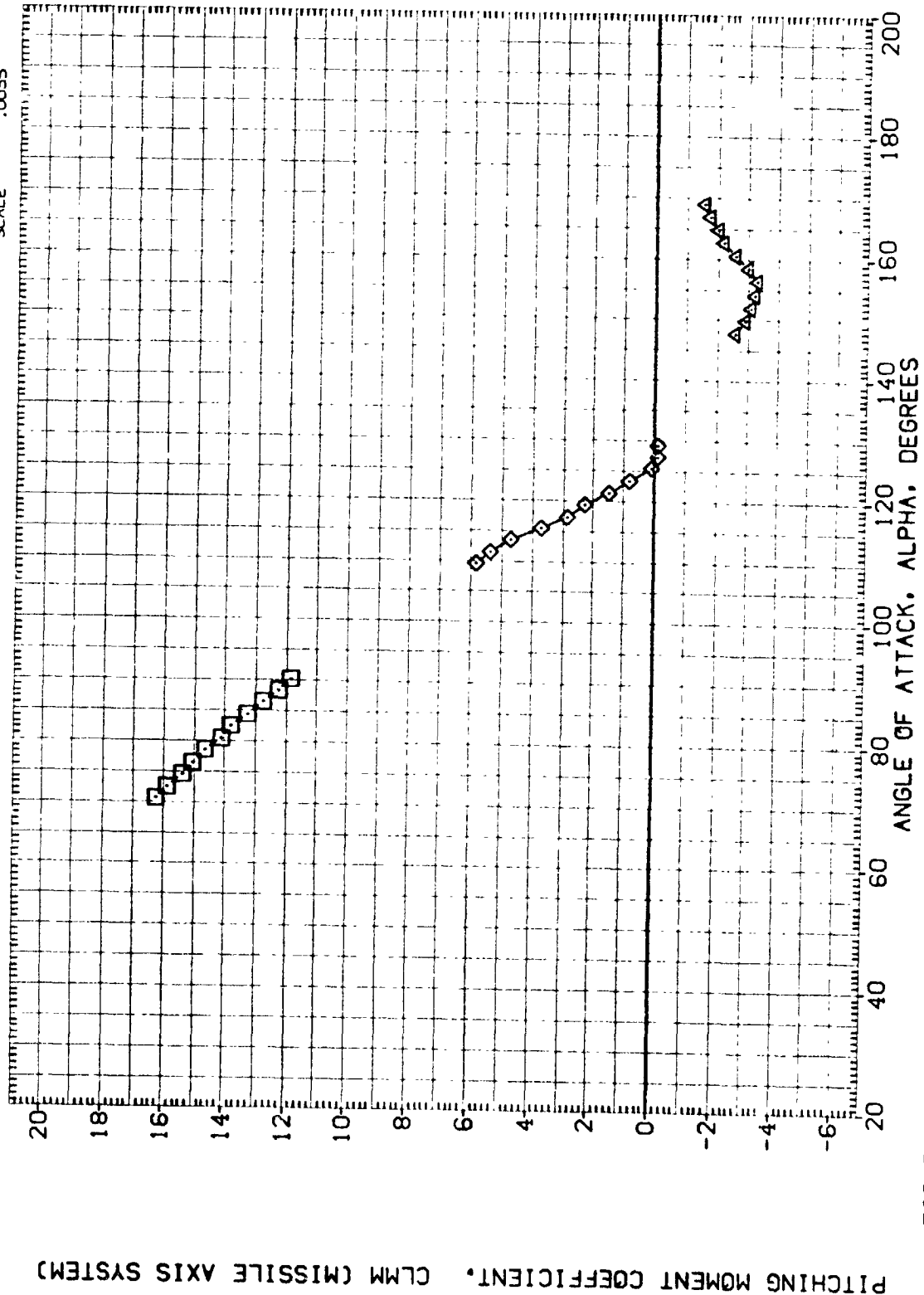


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(C)MACH = 1.20

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H004) DATA NOT AVAILABLE

(A1H034) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H035) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H036) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

45.000

45.000

45.000

45.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

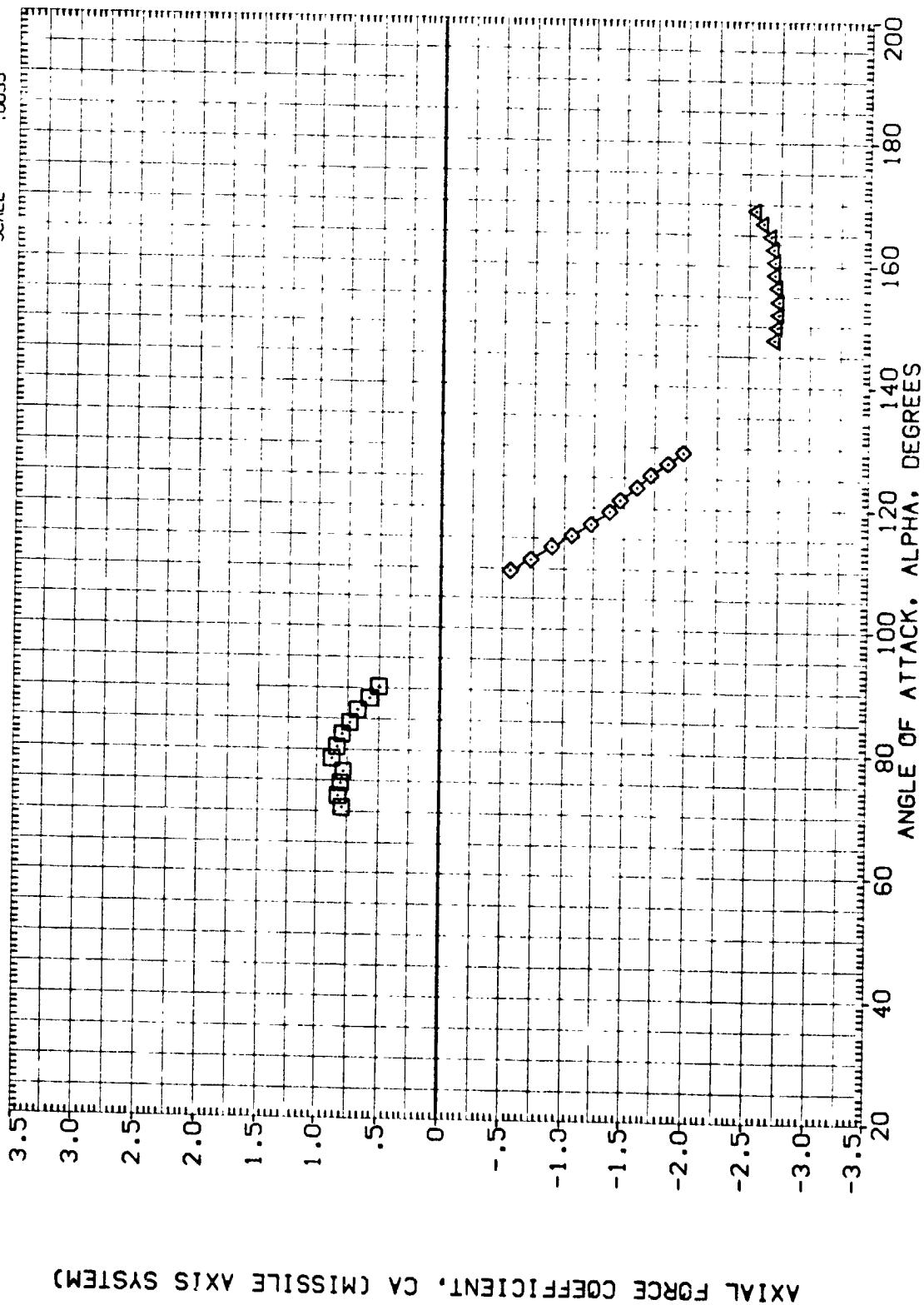


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(D)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI  
 (A1H04)    DATA NOT AVAILABLE    45.000  
 (A1H034)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000  
 (A1H035)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000  
 (A1H036)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

REFERENCE INFORMATION  
 SREF    .5030    SQ. IN.  
 LREF    .8000    IN.  
 BREF    .8000    IN.  
 XMRP    5.7210    IN.    XS  
 YMRP    .0000    IN.    YS  
 ZMRP    .0000    IN.    ZS  
 SCALE    .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

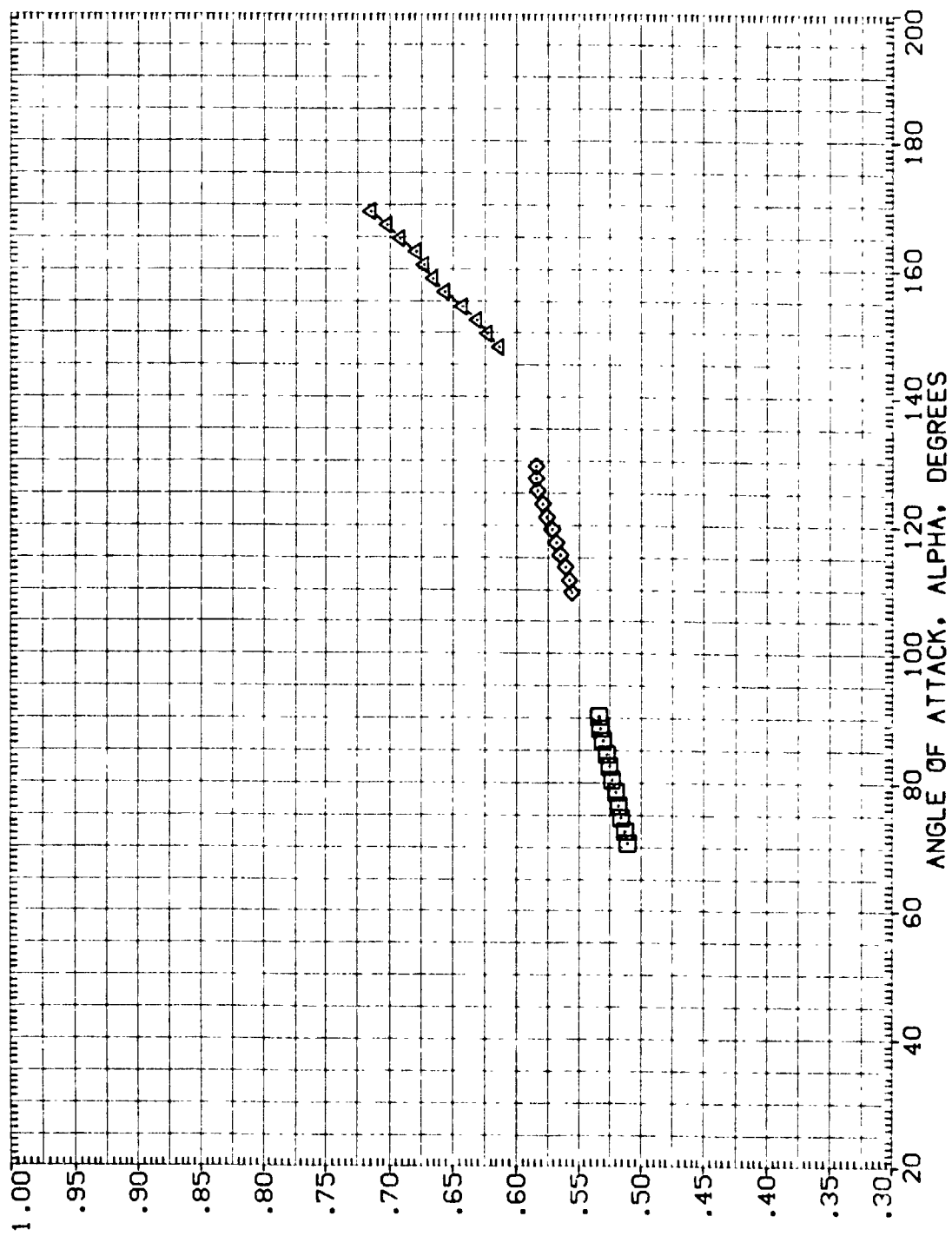


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(O)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH034)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(AIH035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

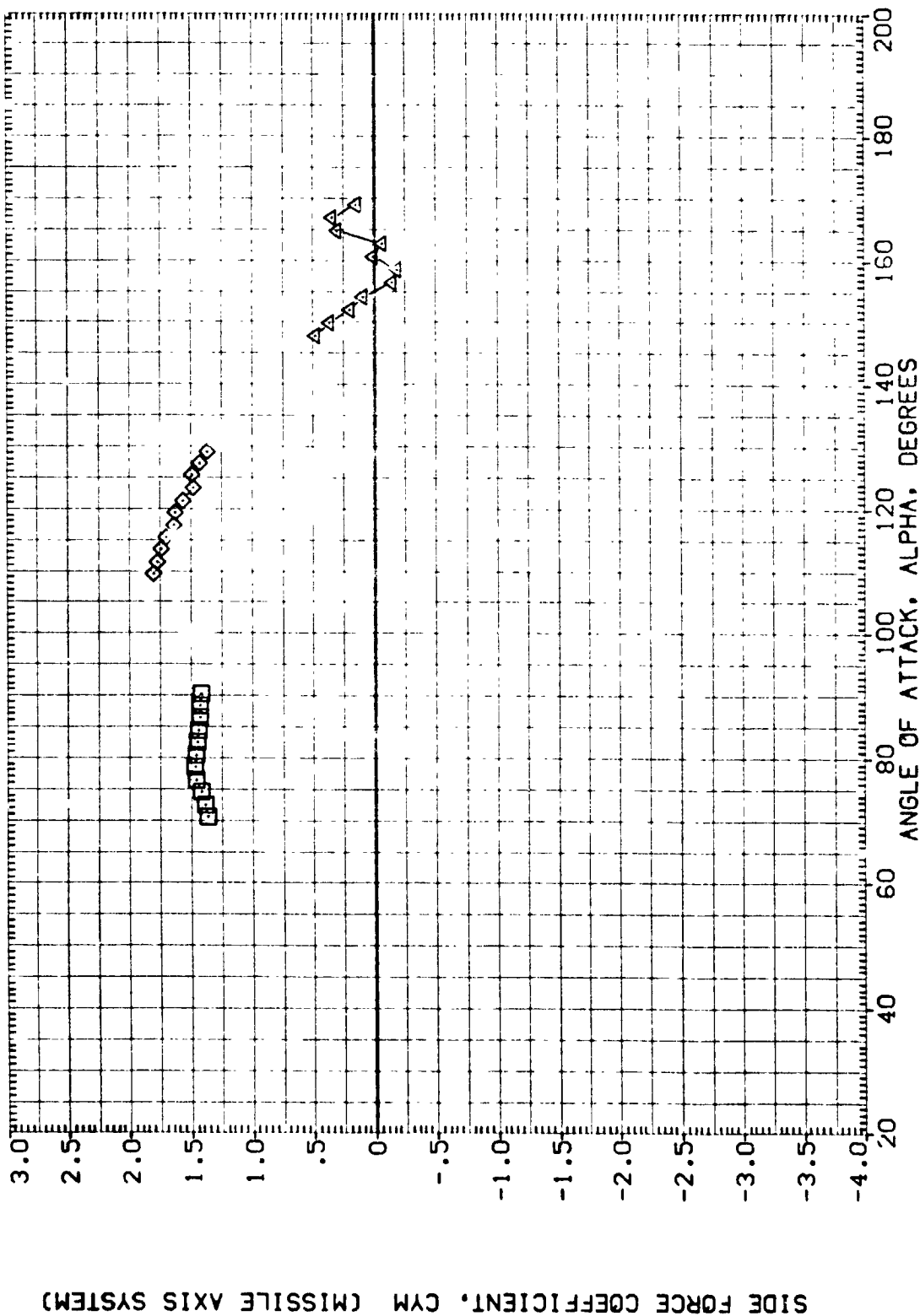


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 45)

(D)MACH = 1.20

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H04)	DATA NOT AVAILABLE	45.000	SREF	.5030	SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF	.8000	IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF	.8000	IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP	5.7210	IN. XS
			YMRP	.0000	IN. YS
			ZMRP	.0000	IN. ZS
			SCALE	.0055	

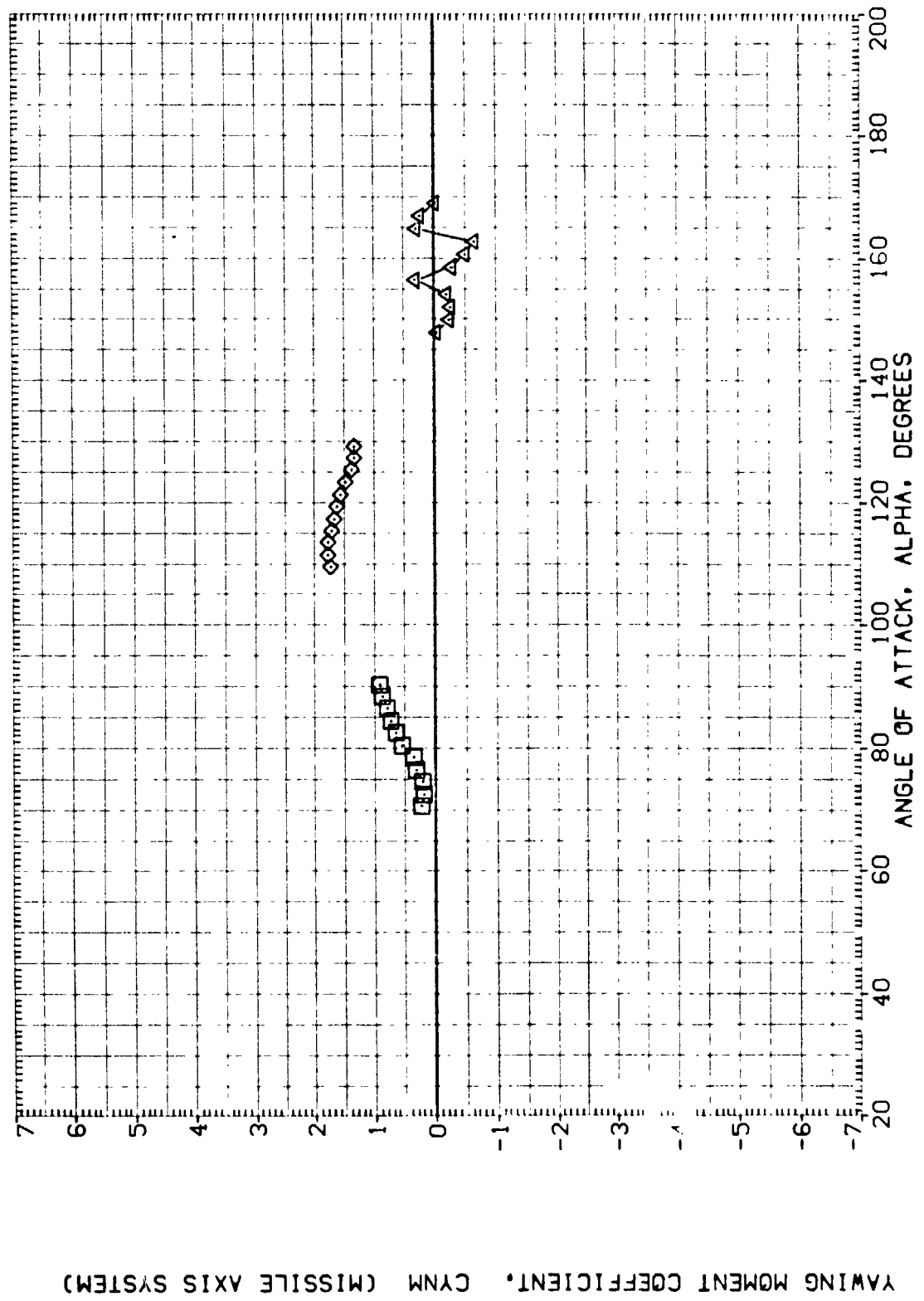


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 45)

(0)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H404)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H404)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H4035)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF 5.7210 IN. XS
(A1H4036)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

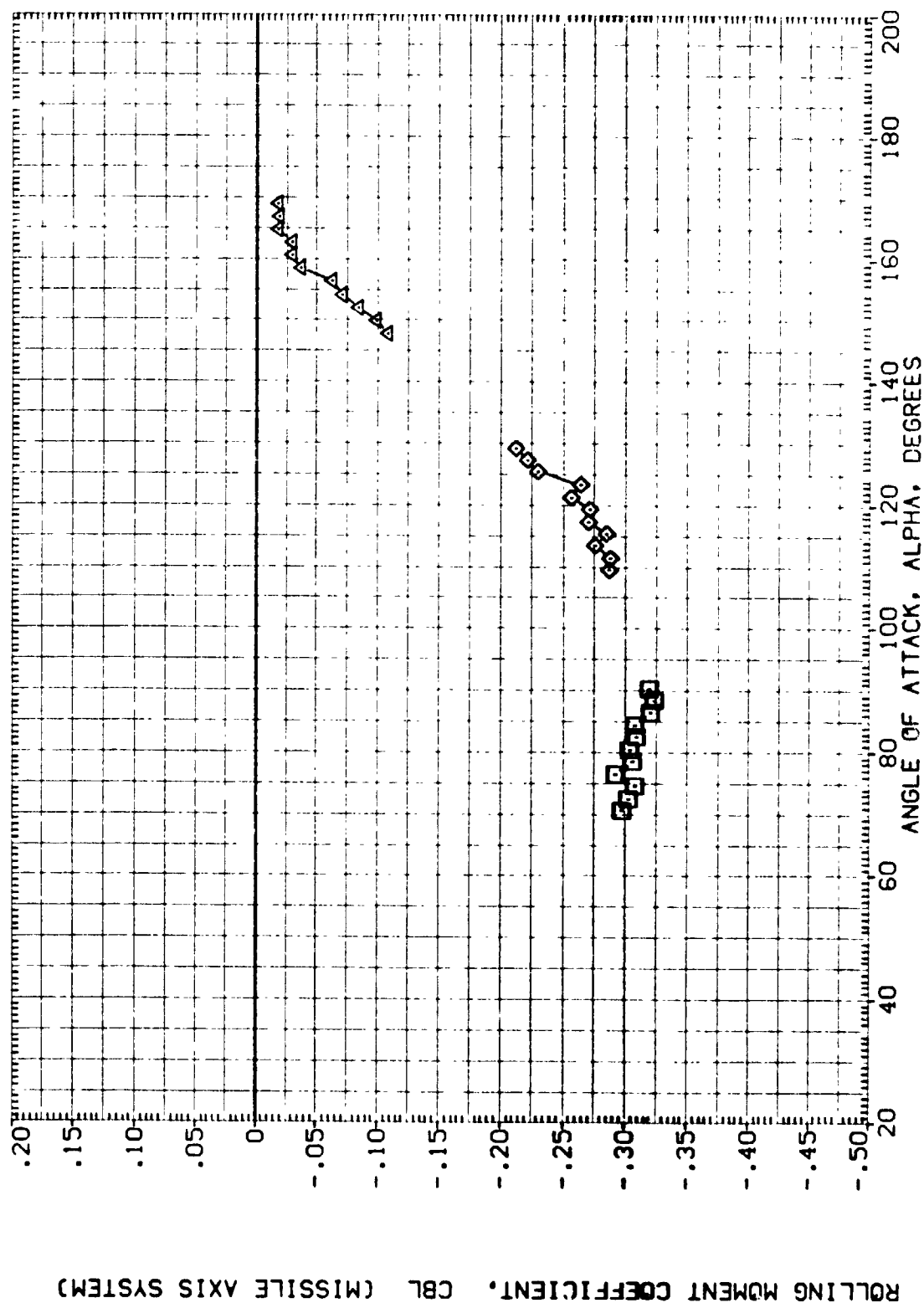


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(O) MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH004)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(AIH034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(AIH035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7213 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

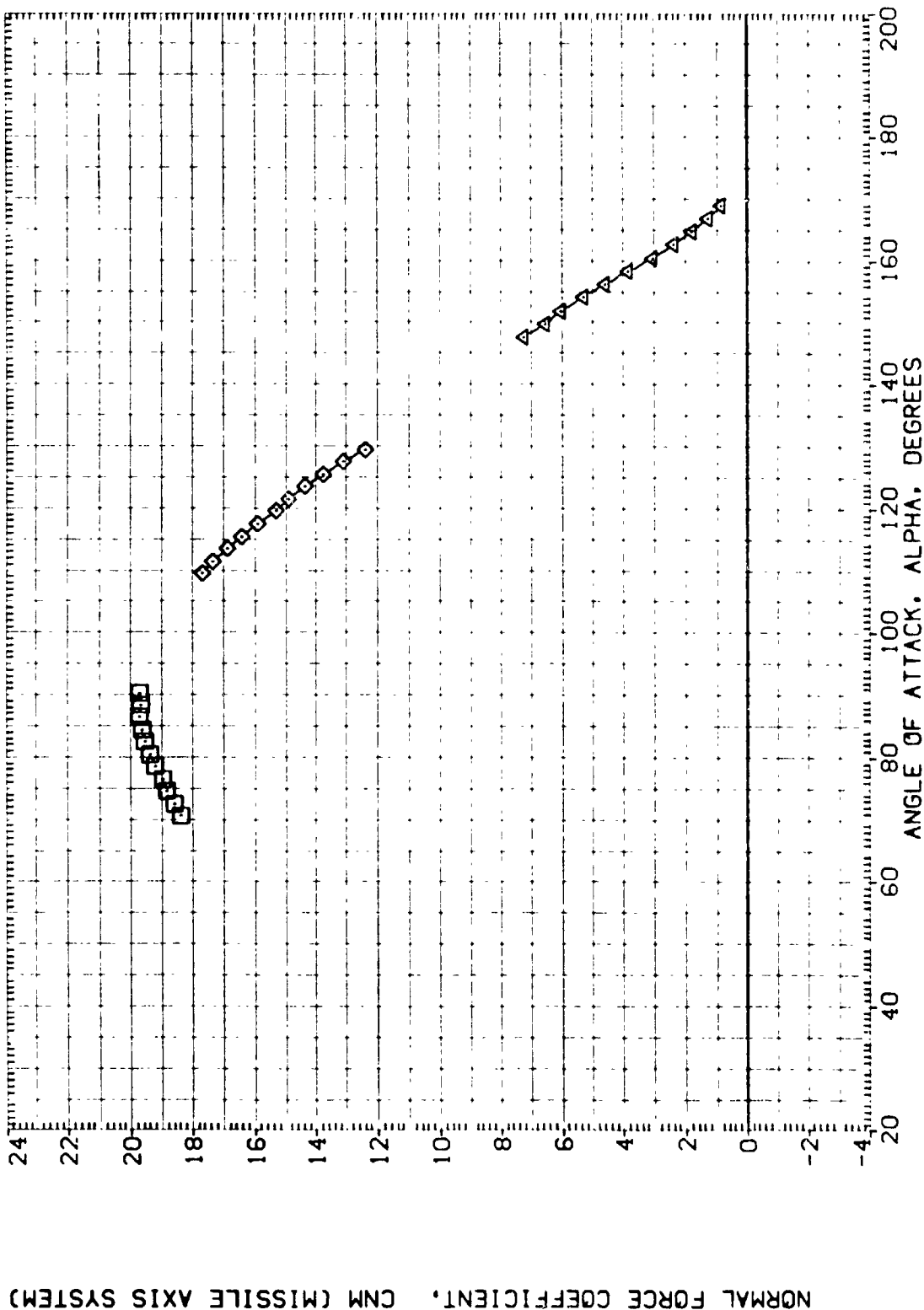


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 45)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH004)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(AIH004)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(AIH006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. ZS
			SCALE .0055

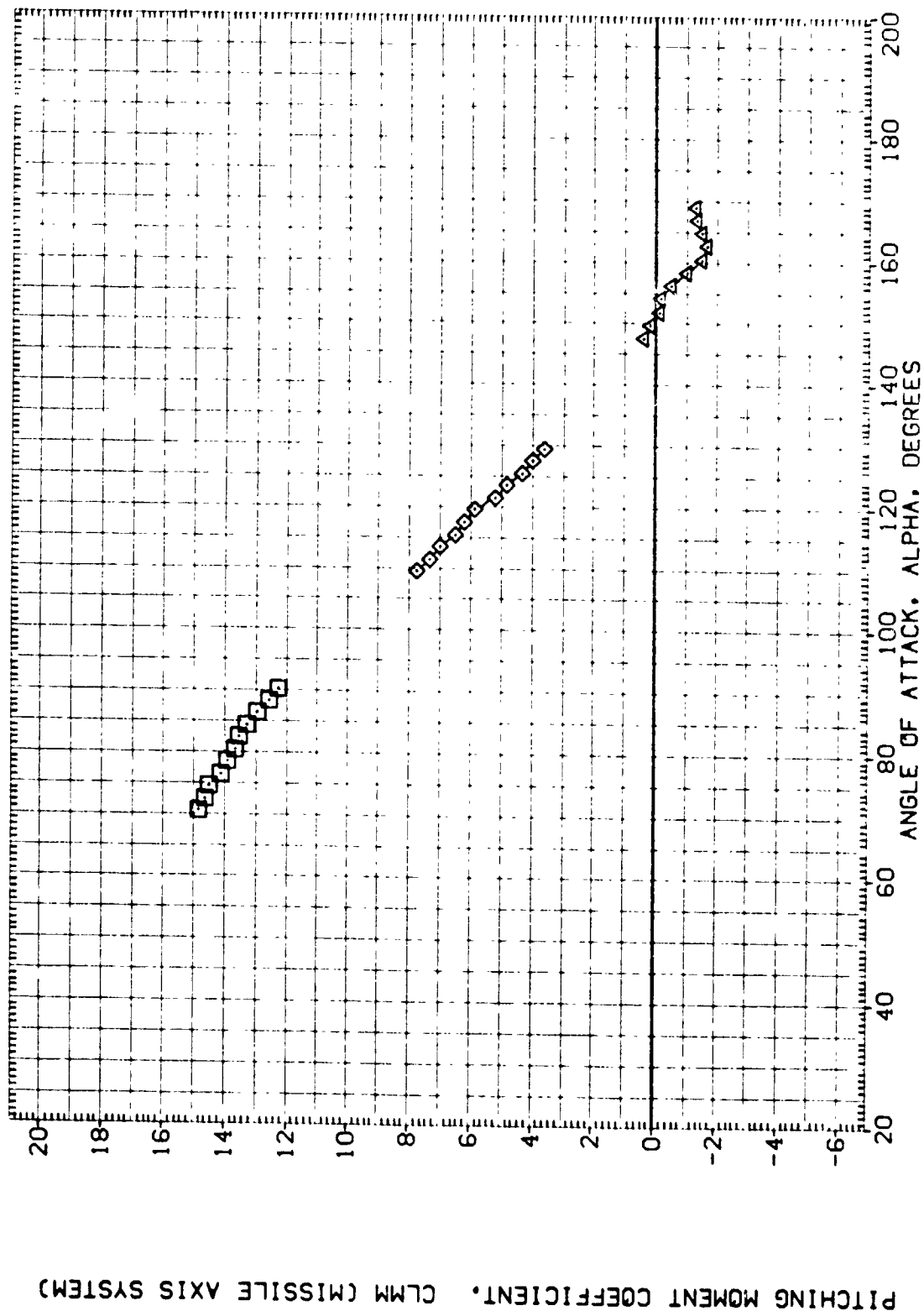


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(E)MACH = 1.96

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H004)	DATA NOT AVAILABLE	45.000	SREF	50.30	IN.
(A1H004)	MSFC TV1604 (SABF)	45.000	LREF	8000	IN.
(A1H004)	MSFC TV1604 (SABF)	45.000	BREF	8000	IN.
(A1H005)	MSFC TV1604 (SABF)	45.000	XTRP	5.7210	IN.
(A1H036)	MSFC TV1604 (SABF)	45.000	YTRP	.0000	IN.
			ZTRP	.0000	IN.
			SCALE	.0055	

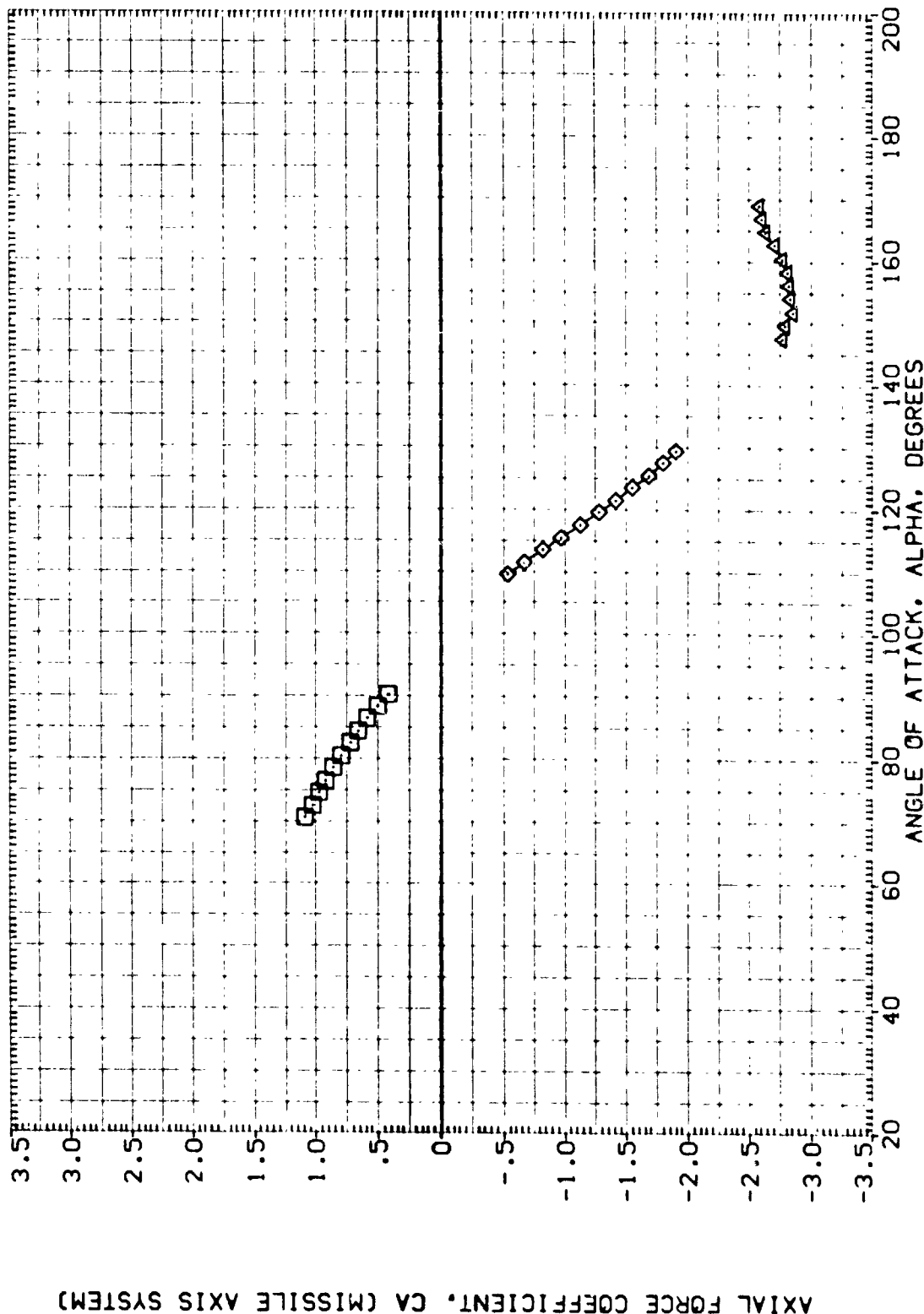


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(E)MACH = 1.96

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H004)      DATA NOT AVAILABLE      45.000

(A1H004)      HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(A1H005)      HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

(A1H006)      HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      45.000

REFERENCE INFORMATION

SREF      50.30      IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5.7210      IN.

YMRP      0.0000      IN.

ZMRP      0.0000      IN.

SCALE      0.0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

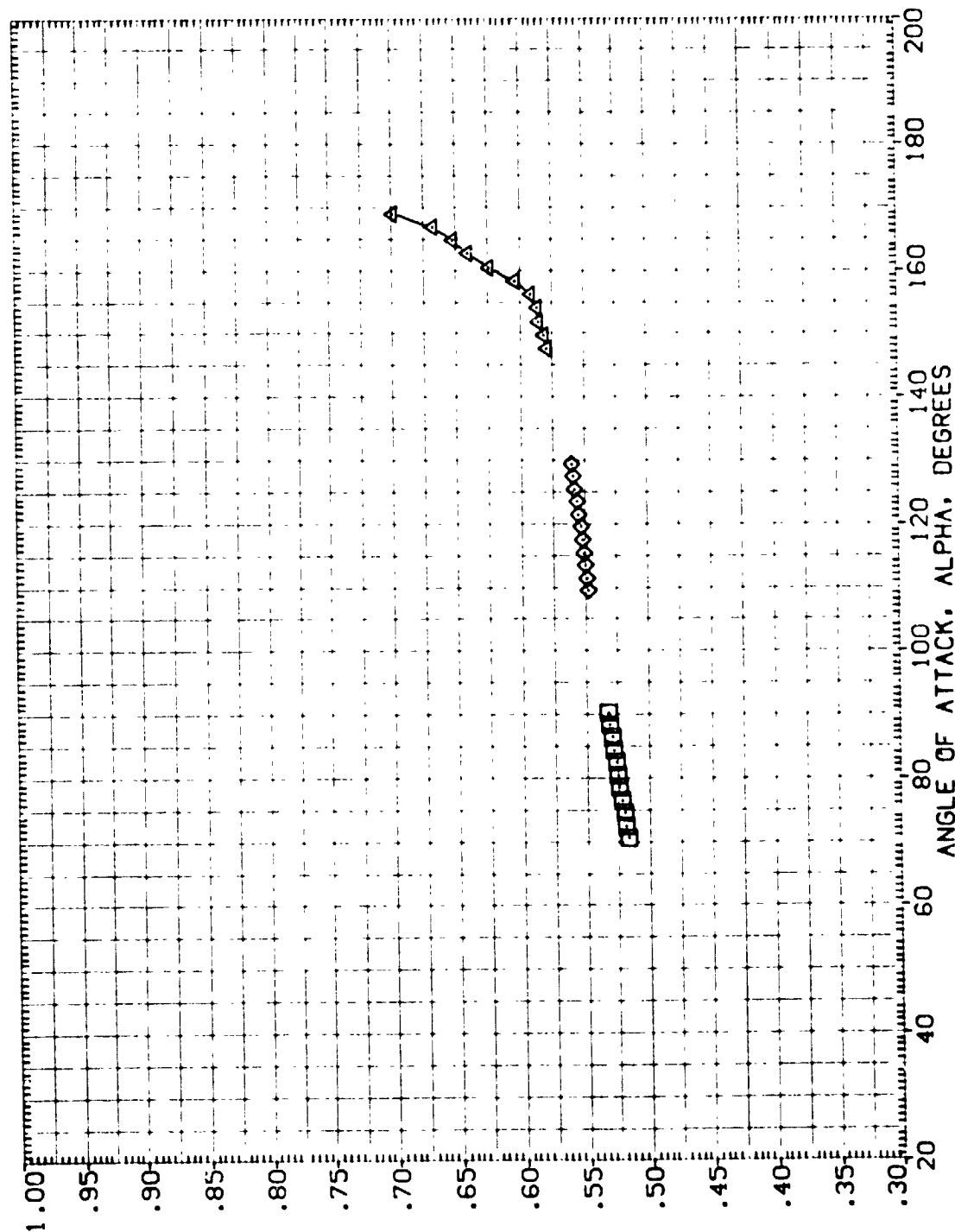


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(E)MACH = 1.96





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP .7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YNM</sub> (MISSILE AXIS SYSTEM)

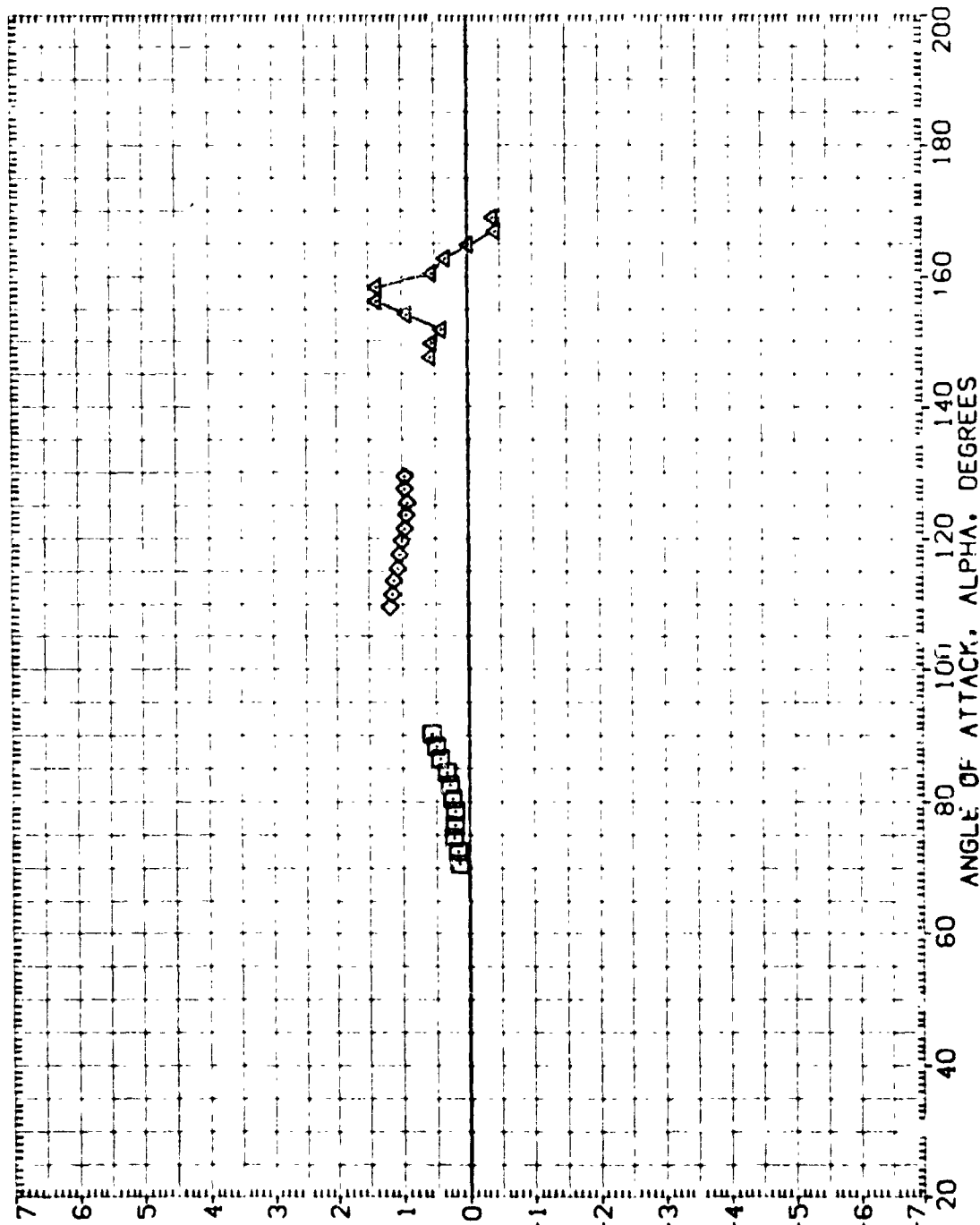


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H034)    DATA NOT AVAILABLE    45.000

(A1H034)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

(A1H035)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

(A1H036)    MSFC TVT604 (SABF) SR3 WITH ALL PROTUBERANCES    45.000

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

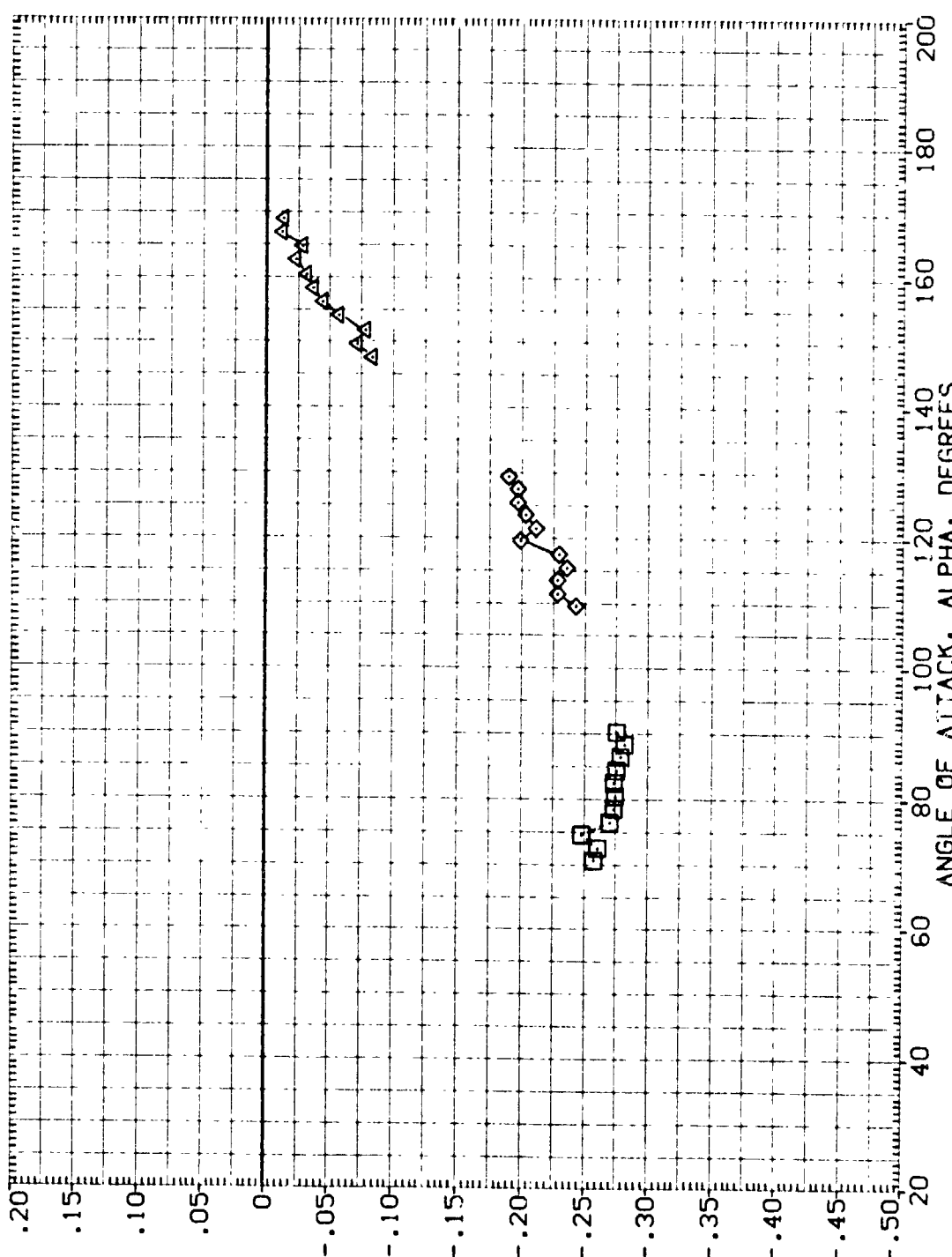


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(C)MACH = 1.96

REFERENCE INFORMATION

SREF	.5030	50. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN. XS
YMRP	.0000	IN. YS
ZMRP	.0000	IN. ZS
SCALE	.0055	

PHI

45.000
45.000
45.000

DATA SET SYMBOL

(A1H004)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(A1H034)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H035)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H036)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

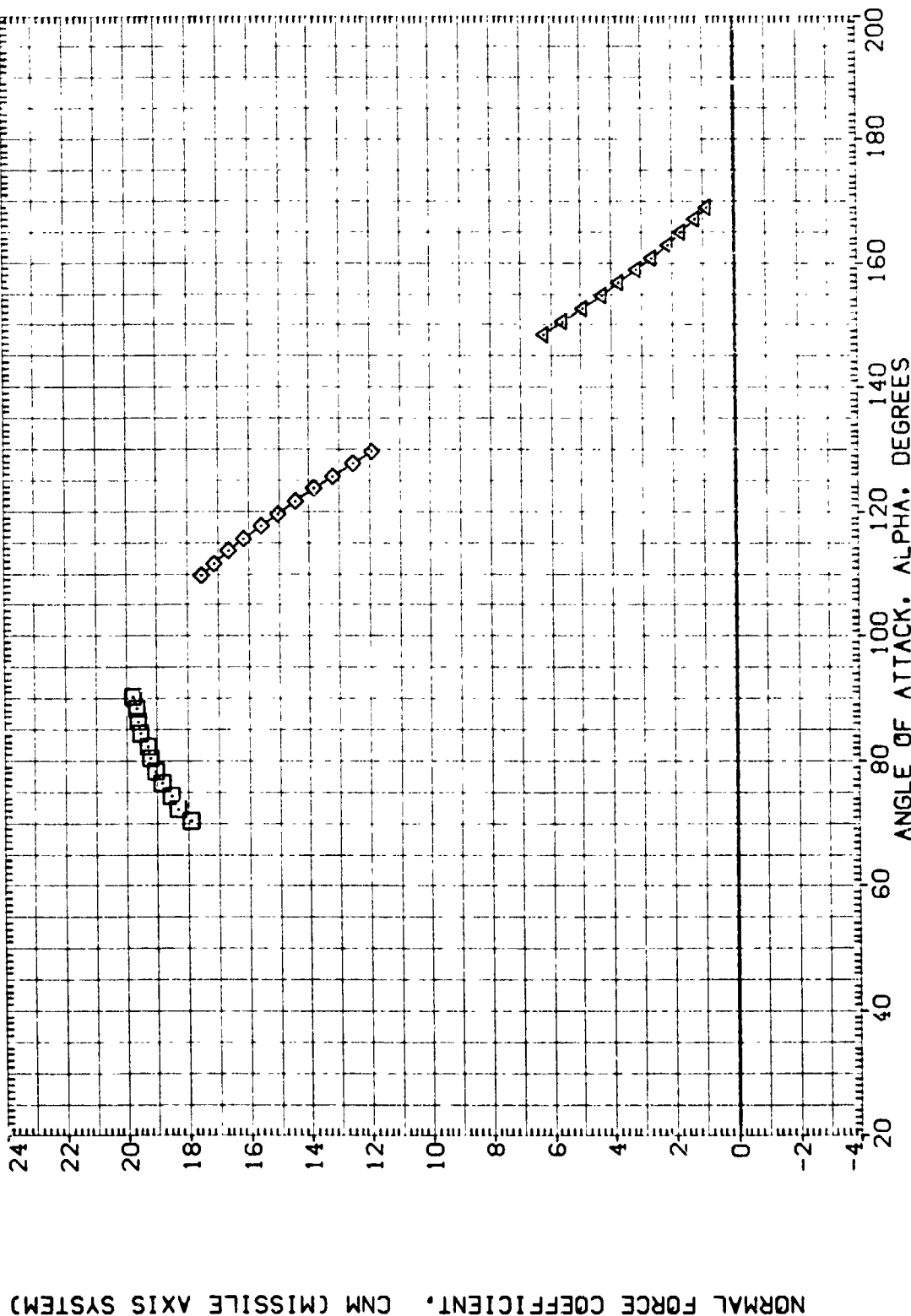


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H04)	DATA NOT AVAILABLE	45.000	SREF .5030 IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

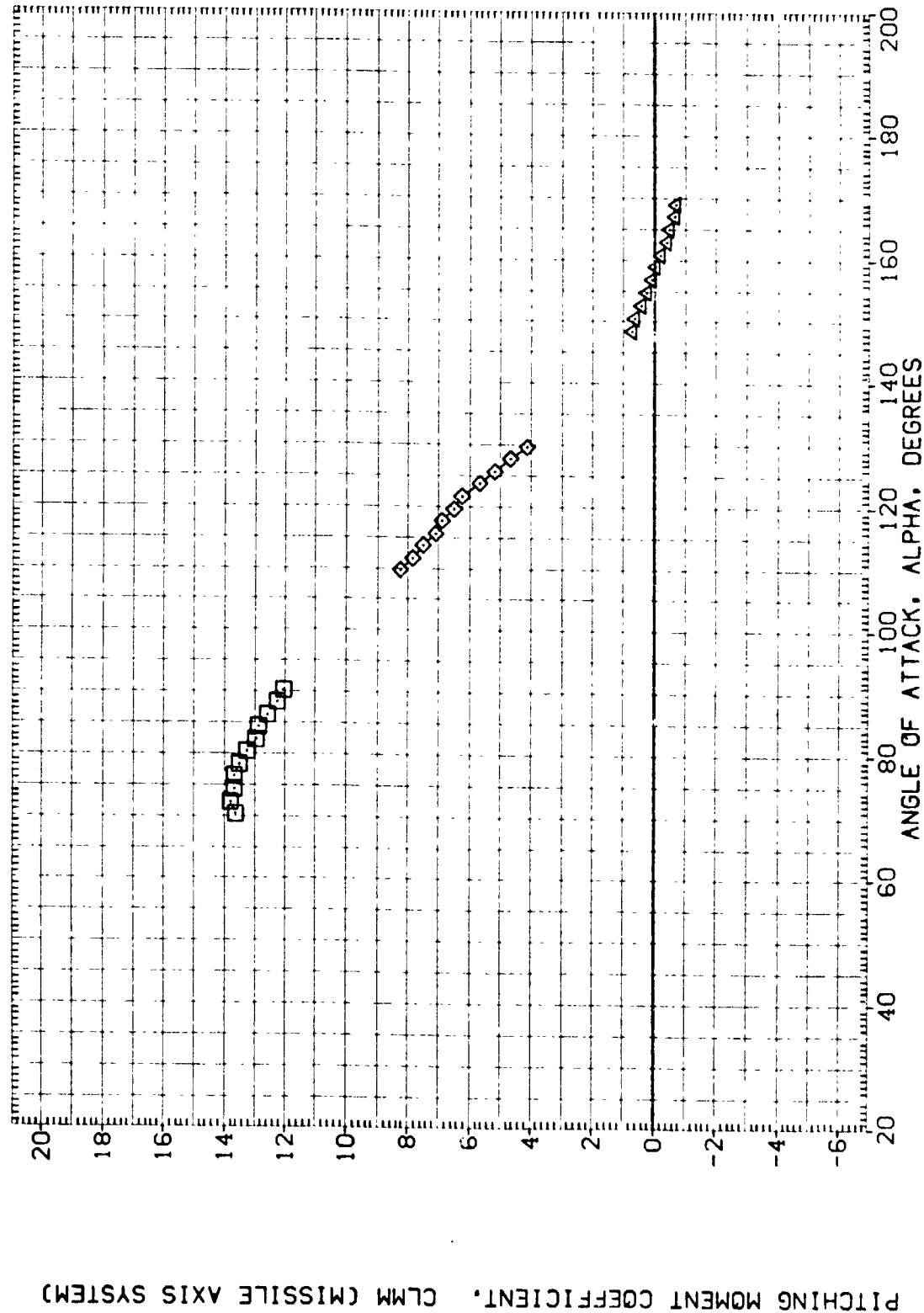


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(F)MACH = 2.74

DATA SET SYMBOL    CONFIGURATION DESCRIPTION  
 (A1H034)    DATA NOT AVAILABLE  
 (A1H035)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H036)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 45.000  
 45.000  
 45.000

REFERENCE INFORMATION  
 SREF    .5030    SQ. IN.  
 LREF    .8000    IN.  
 BREF    .8000    IN.  
 XMRP    5.7210    IN. XS  
 YMRP    .0000    IN. YS  
 ZMRP    .0000    IN. ZS  
 SCALE    .0055

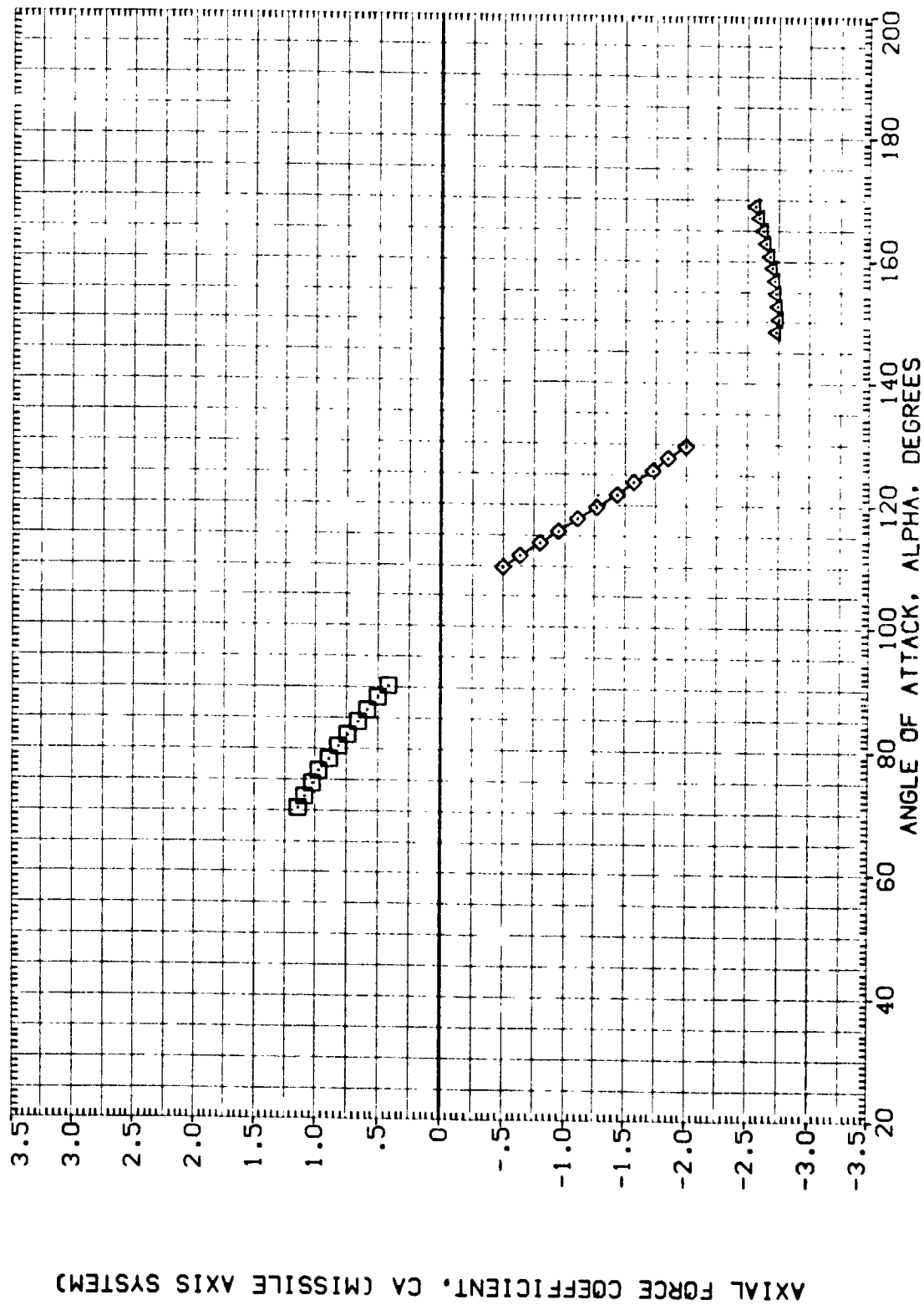


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(F)MACH = 2.74

DATA SET 5  
[ A1HA04 ]  
[ A1HO34 ]  
[ A1HO35 ]  
[ A1HO36 ]

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

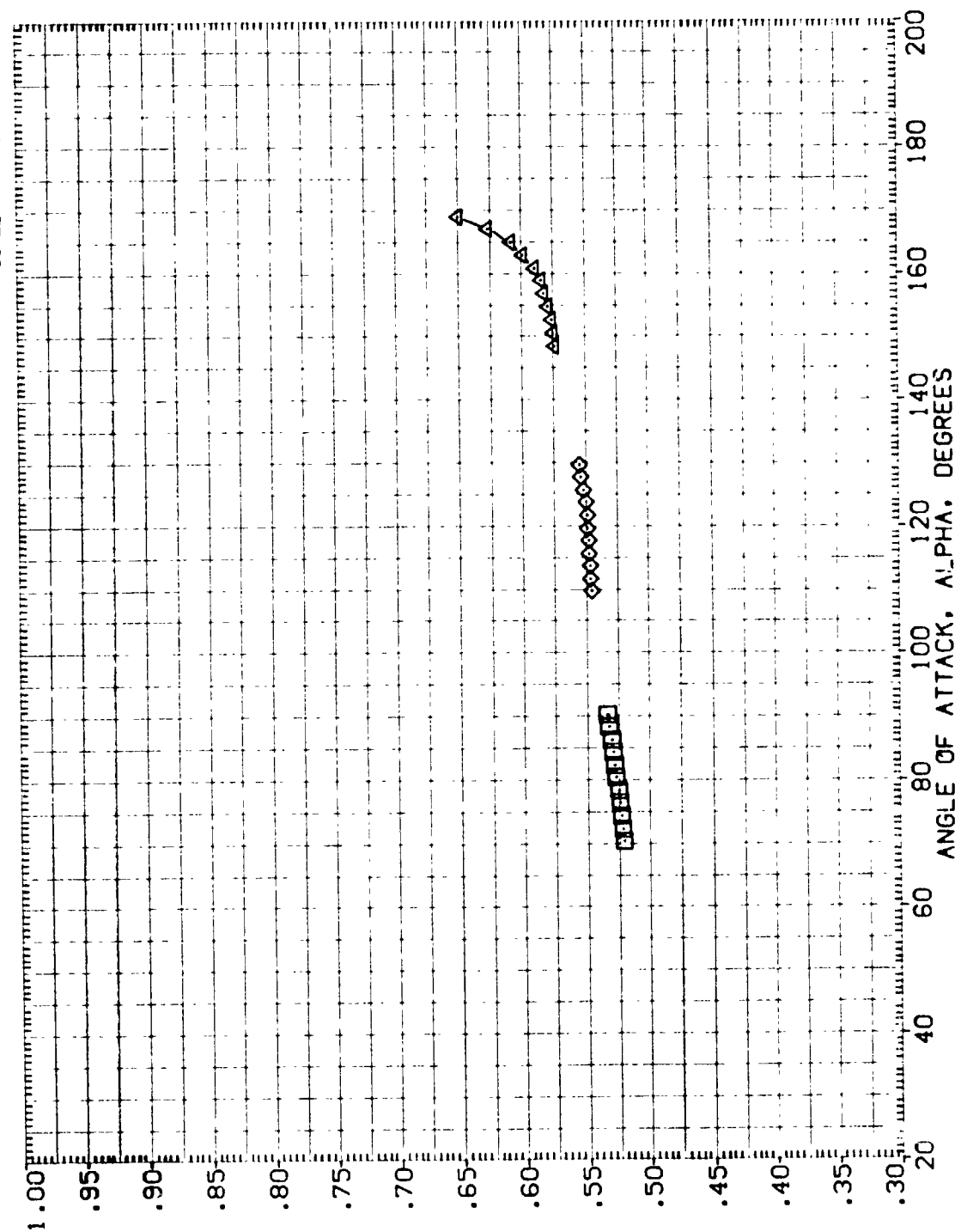


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\text{PHI} = 45^\circ$ )

$$(F)_{MACH} = 2.74$$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH041)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(AIH034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LRREF .8000 IN.
(AIH035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

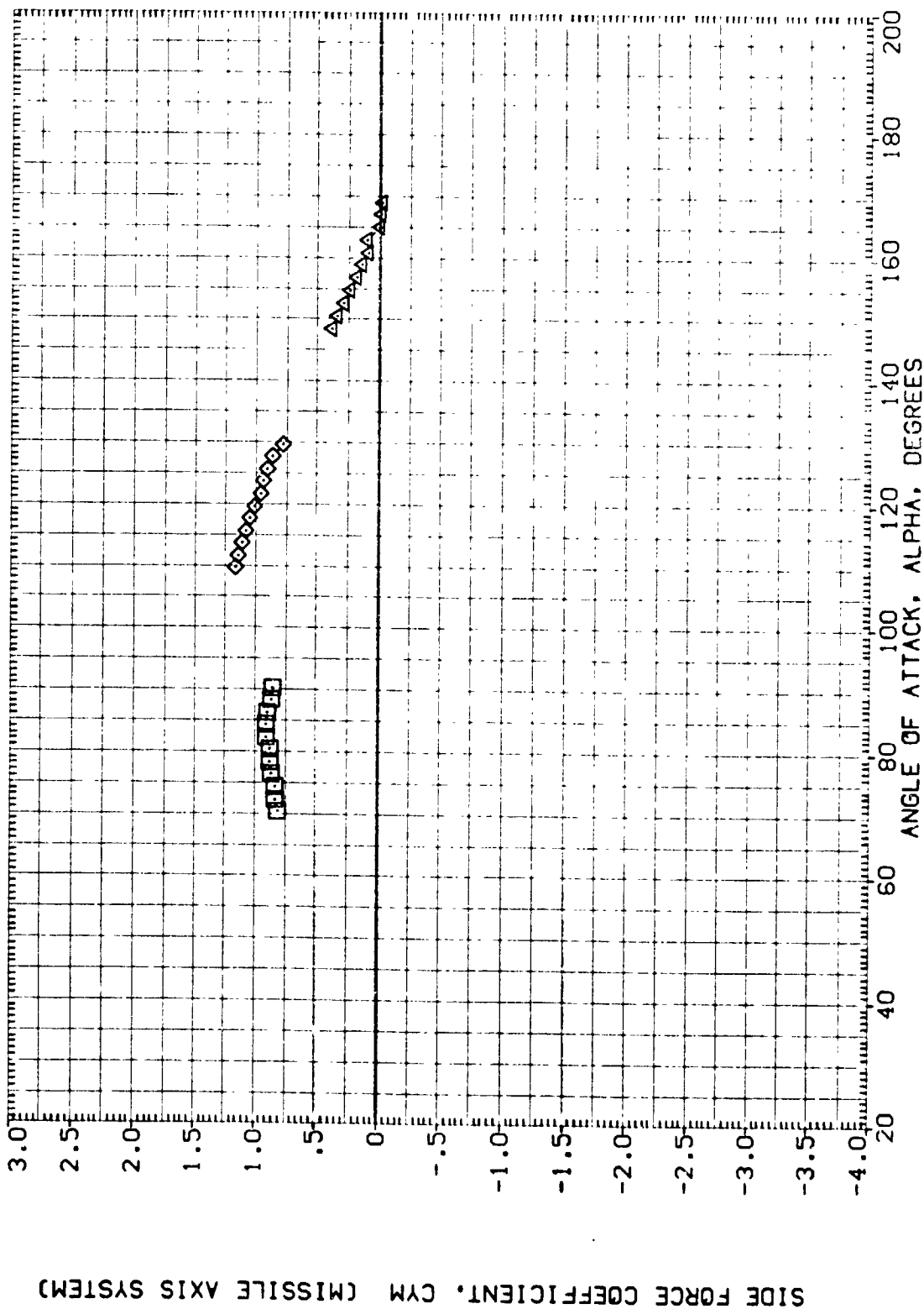
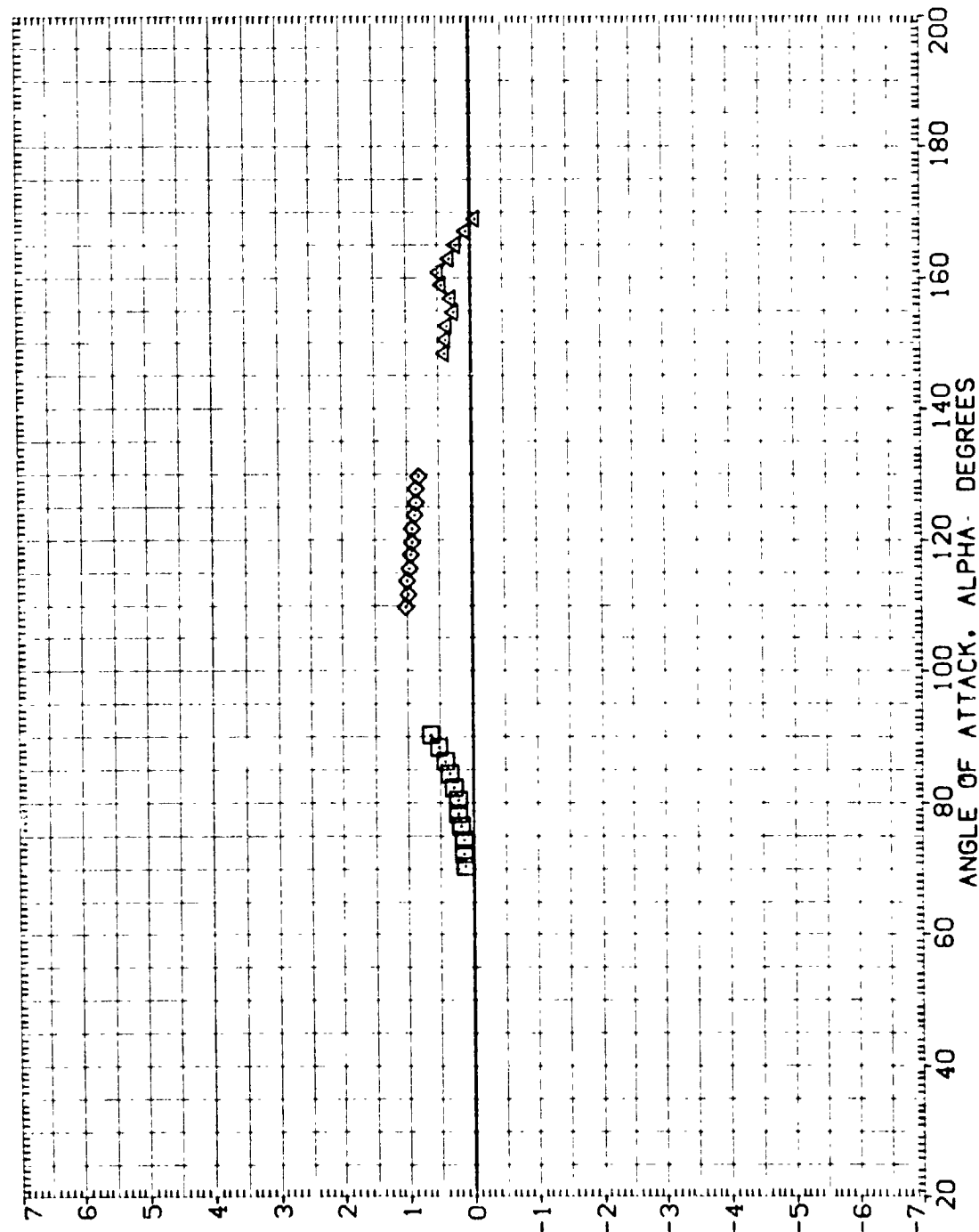


FIGURE 20. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 45)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H474)	DATA NOT AVAILABLE	45.000	SREF .5030 SQ. IN.
(A1H474)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H475)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H476)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS



YAWING MOMENT COEFFICIENT, C<sub>ym</sub> (MISSILE AXIS SYSTEM)

FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)



DATA SET SYMBOL    CONFIGURATION DESCRIPTION

(A1H004)    DATA NOT AVAILABLE

(A1H004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H006)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

45.000

45.000

45.000

REFERENCE INFORMATION

SREF    5030    50. IN.

LREF    8000    IN.

BREF    8000    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

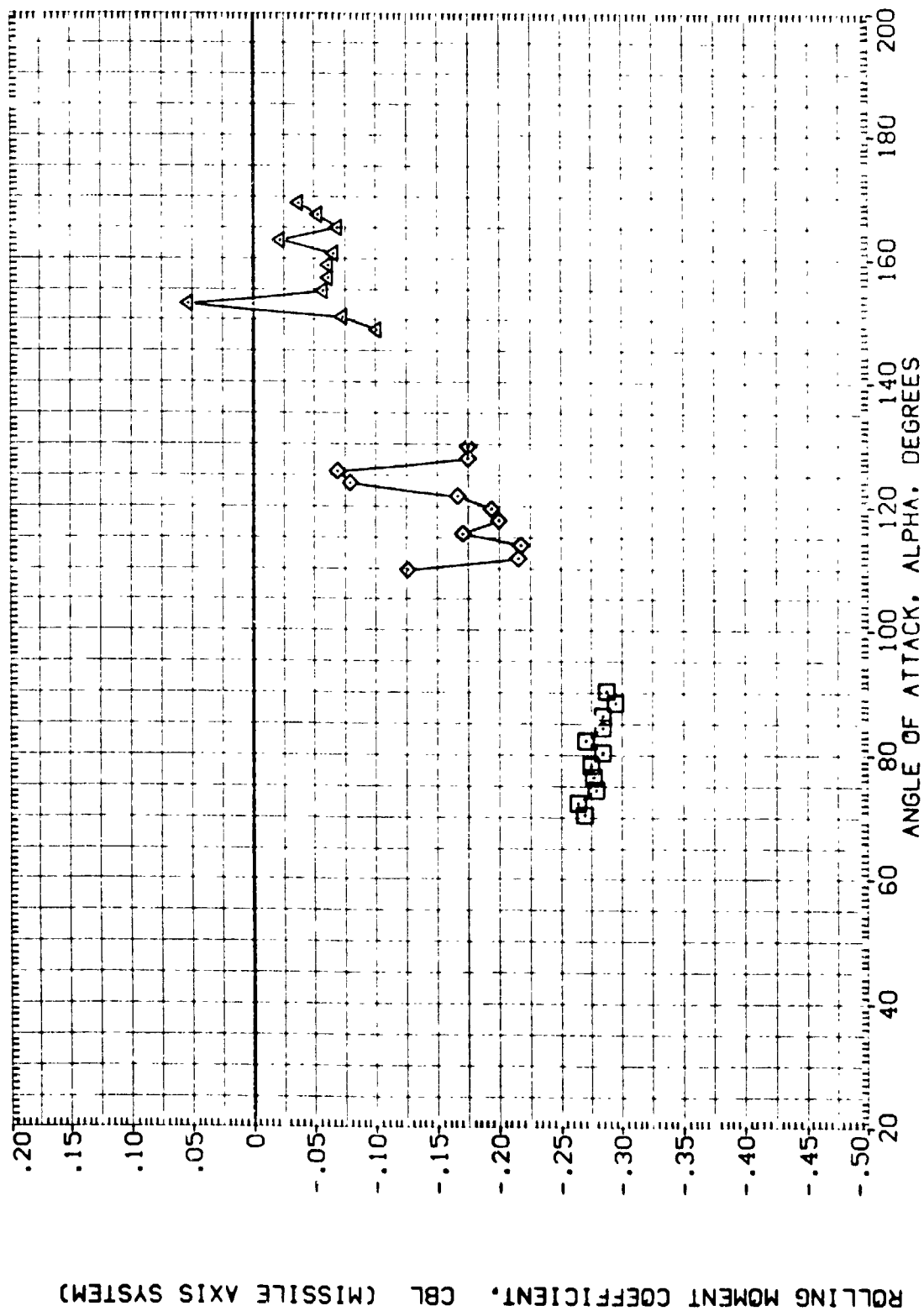


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(F) MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH004)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	SREF .5030 SQ. IN.
(AIH034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMPP 5.7210 IN. XS
			YMPP .0000 IN. YS
			ZMPP .0000 IN. ZS
			SCALE .0055

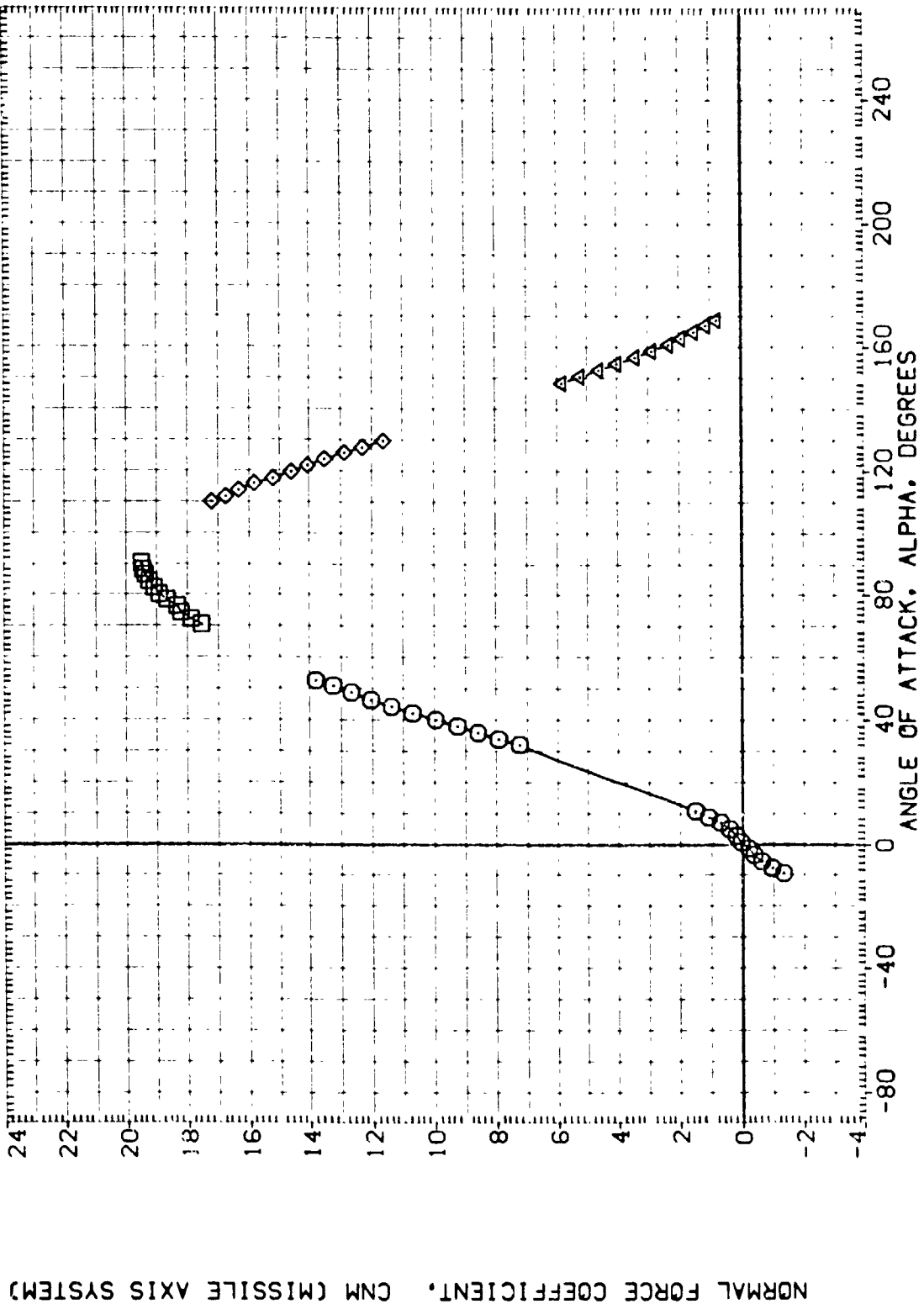


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(A)MACH = 3.48

REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XPRP 5.7210 IN.  
 YPRP .0000 IN.  
 ZPRP .0000 IN.  
 SCALE .0055

PHI  
 45.000  
 45.000  
 45.000  
 45.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H004) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H034) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H035) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H036) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

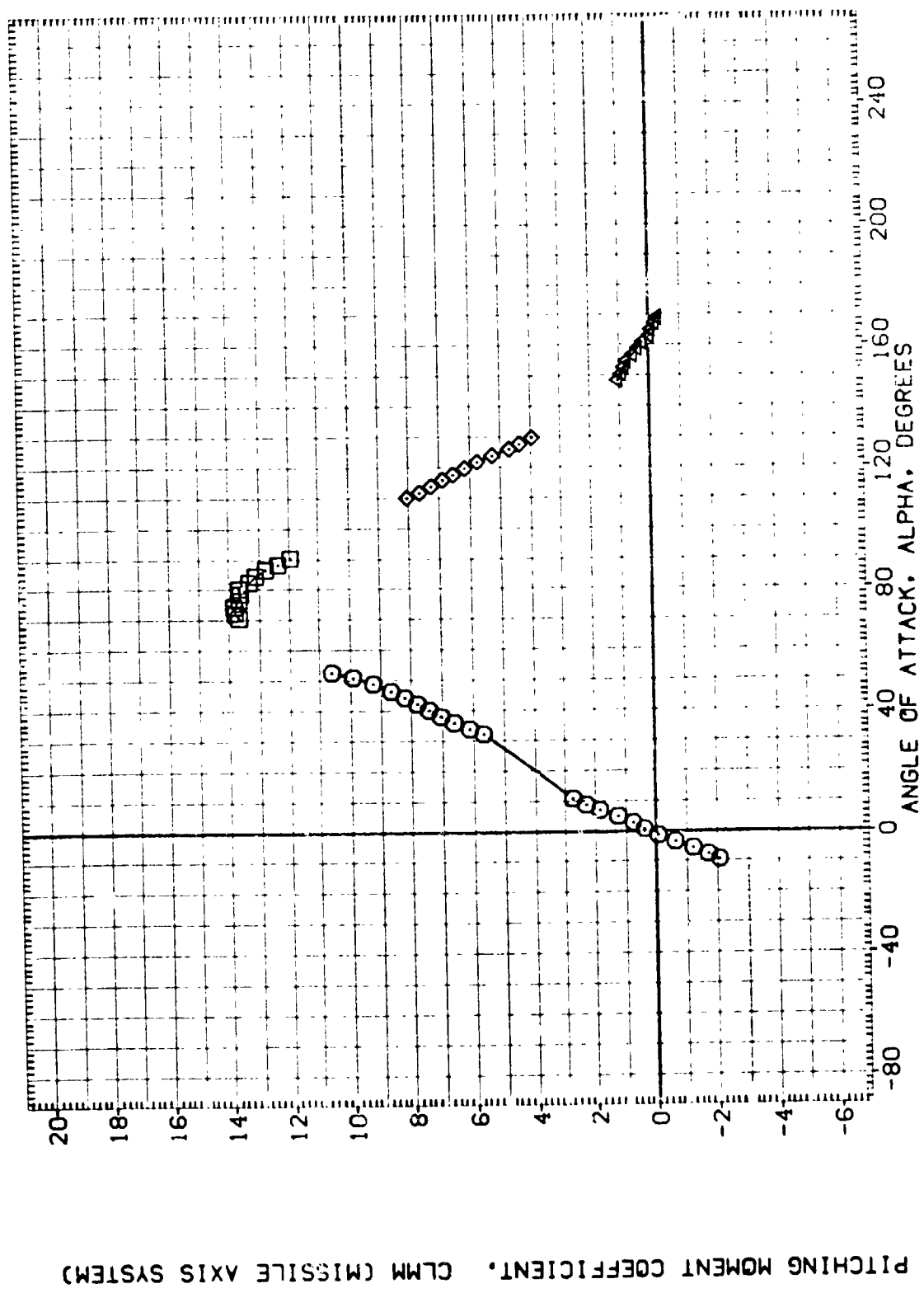


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	SREF .5030 IN.
(AIH034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(AIH035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(AIH036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

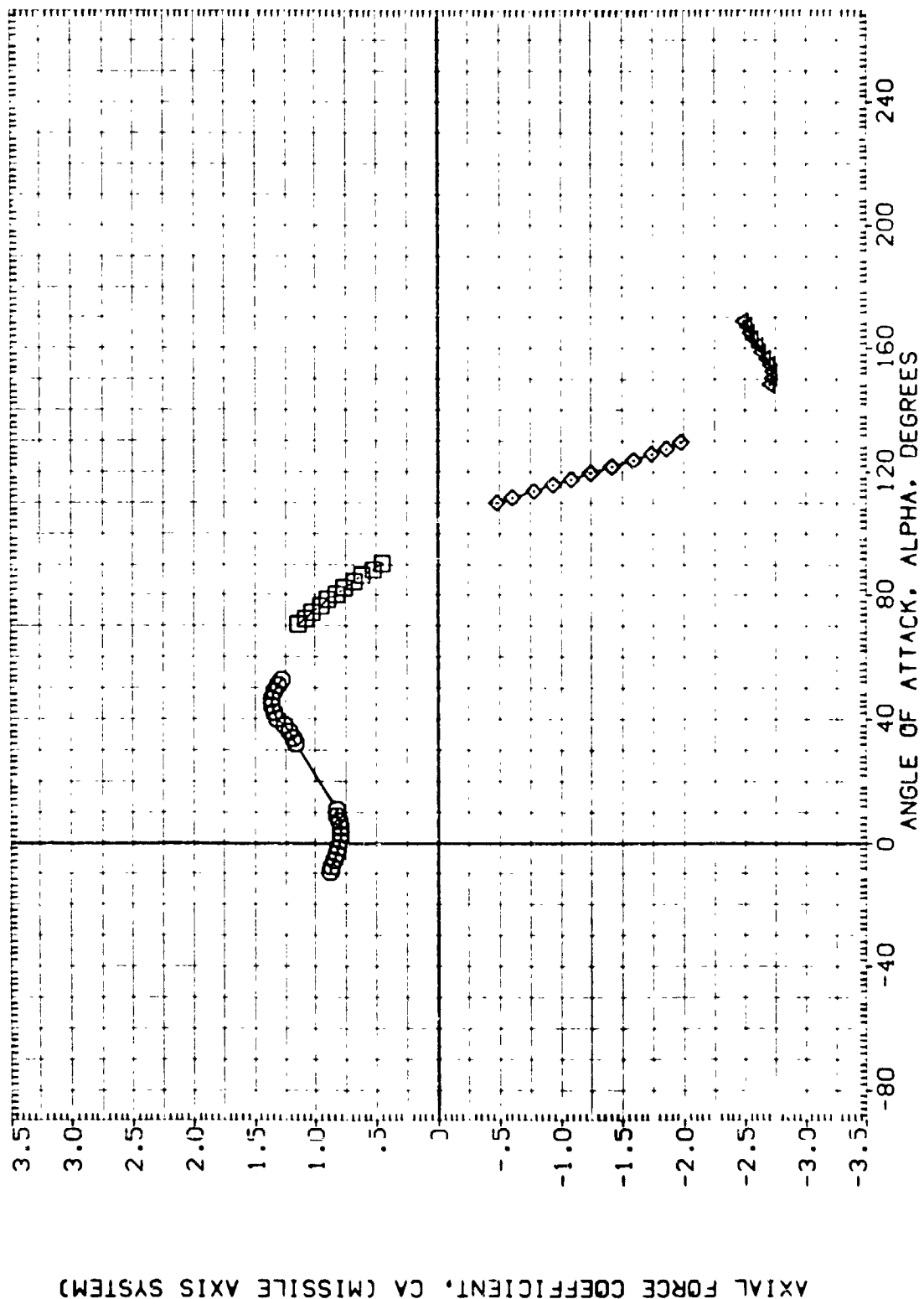


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH WALL PROTUBERANCES (PHI = 45)

(A) MACH = 3.48

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H004)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

(A1H006)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

(A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    45.000

REFERENCE INFORMATION

SREF    .5030    SQ. IN.

LREF    .8000    IN.

BREF    .8000    IN.

XPRP    5.7210    IN.

YPRP    .0000    IN.

ZPRP    .0000    IN.

SCALE    .0055

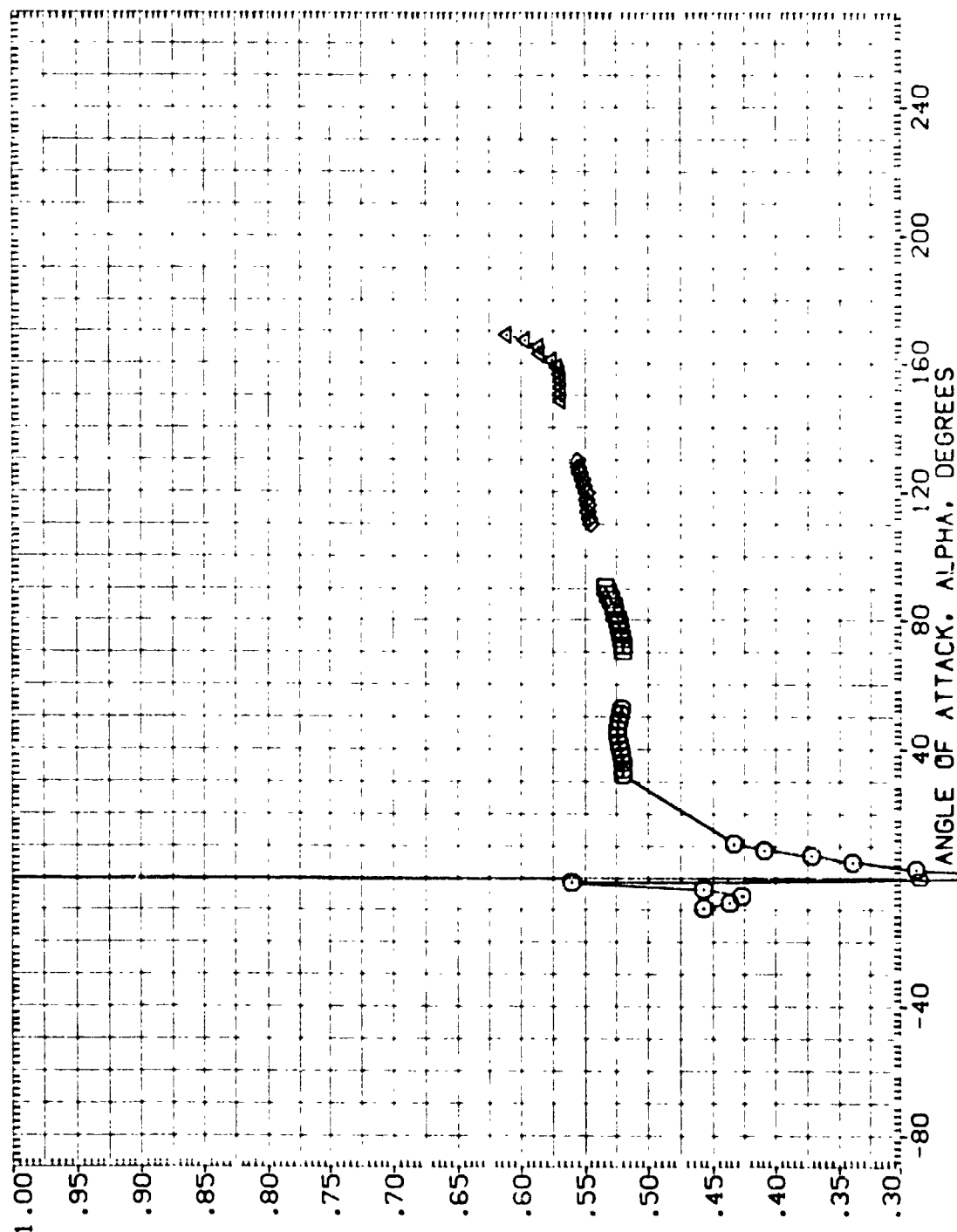


FIGURE 20. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 45)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H004)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	SREF .5030 IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

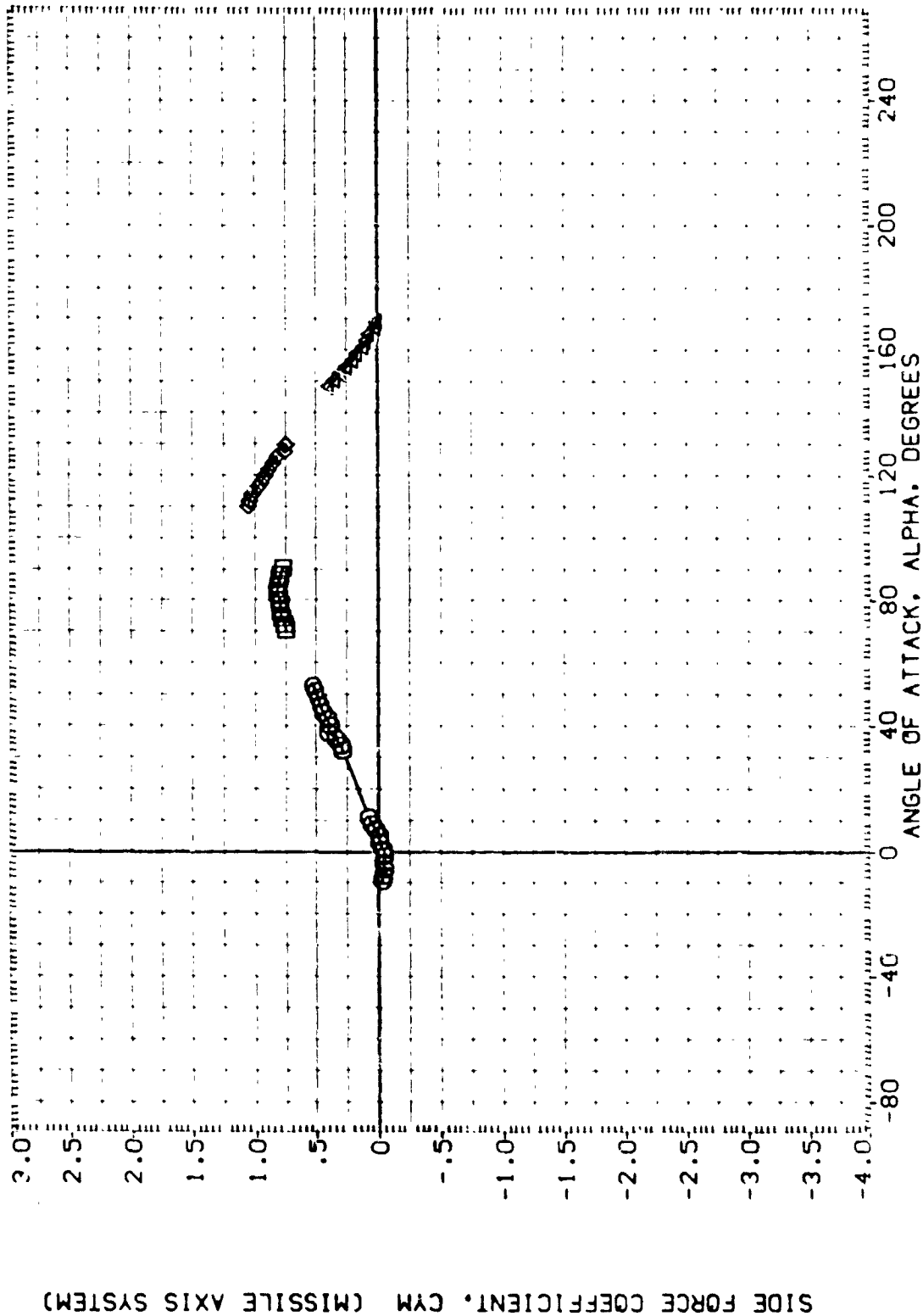


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(A)MACH = 3.18

REFERENCE INFORMATION

SREF	5030	IN.
LREF	8000	IN.
UXEF	8000	IN.
YHFP	5.7210	IN.
ZHFP	.0000	IN.
SCALE	.0055	IN.

PHI

45.000
45.000
45.000

DATA SET SYMBOL

MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

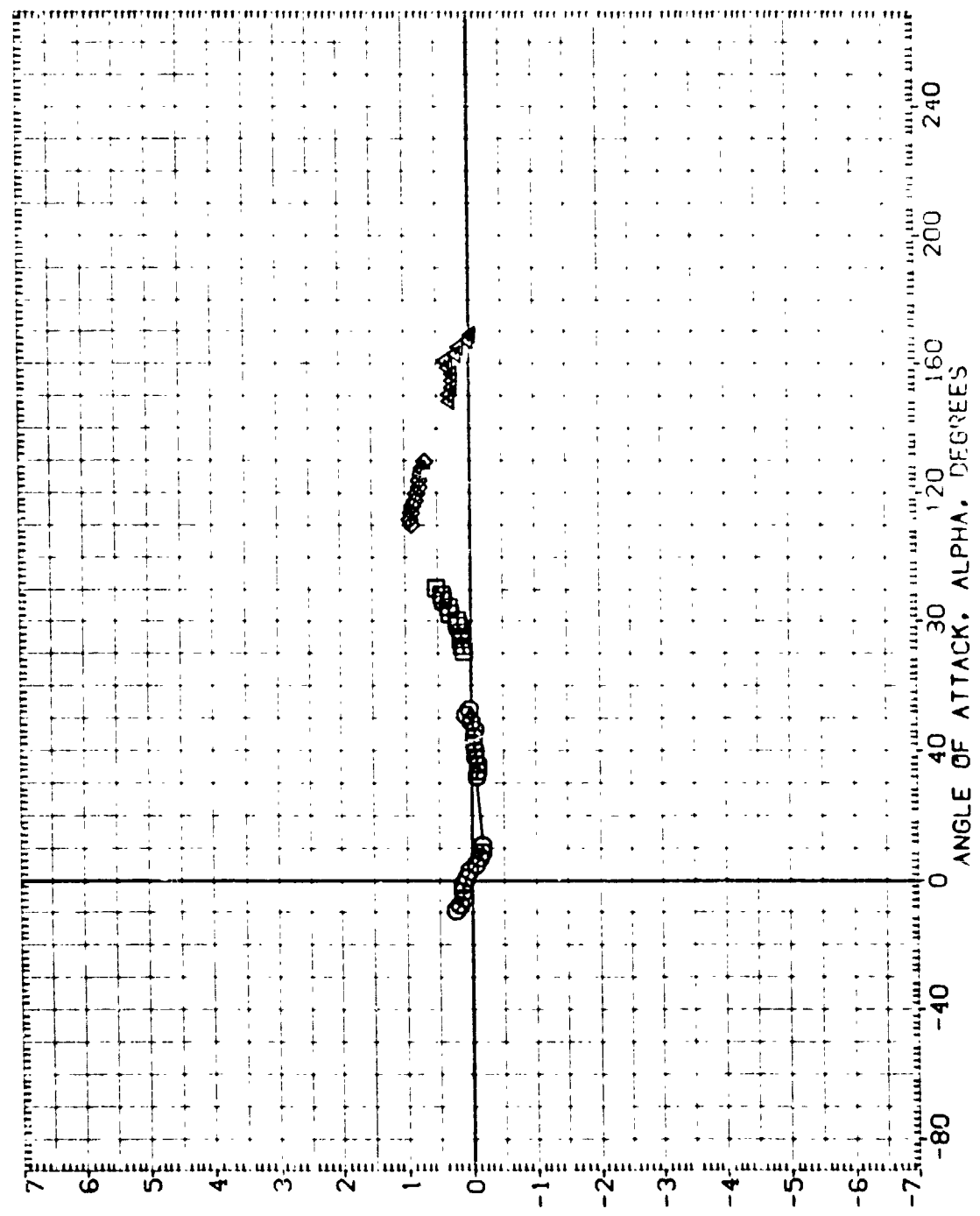


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 45)

(A) MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	SREF .5030 SQ. IN.
(A1H035)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	LREF .8000 IN.
(A1H036)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	45.000	BREF .8000 IN.
	MSFC TVT604 (GAUF) SRB WITH ALL PROTUBERANCES	45.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

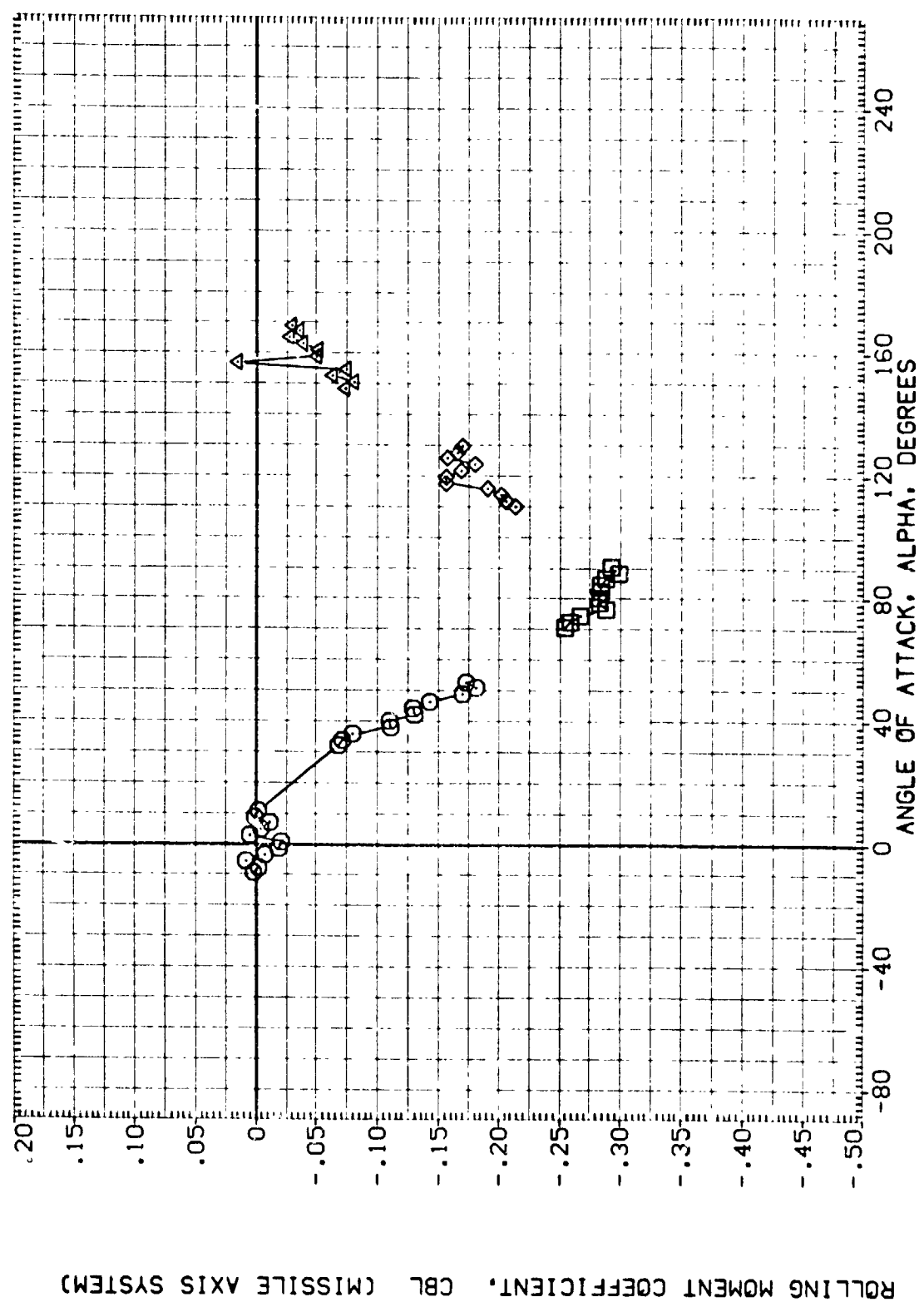


FIGURE 20. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 45)

(A)MACH = 3.48



DATA SET SYMBOL    CONFIGURATION DESCRIPTION  
 (A1H005)    DATA NOT AVAILABLE  
 (A1H040)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 90.000  
 90.000  
 90.000

REFERENCE INFORMATION  
 SREF    50.30    50. IN.  
 LREF    .9000    IN.  
 BREF    .9000    IN.  
 XMRP    5.7210    IN.    XS  
 YMRP    .0000    IN.    YS  
 ZMRP    .0000    IN.    ZS  
 SCALE    .0055

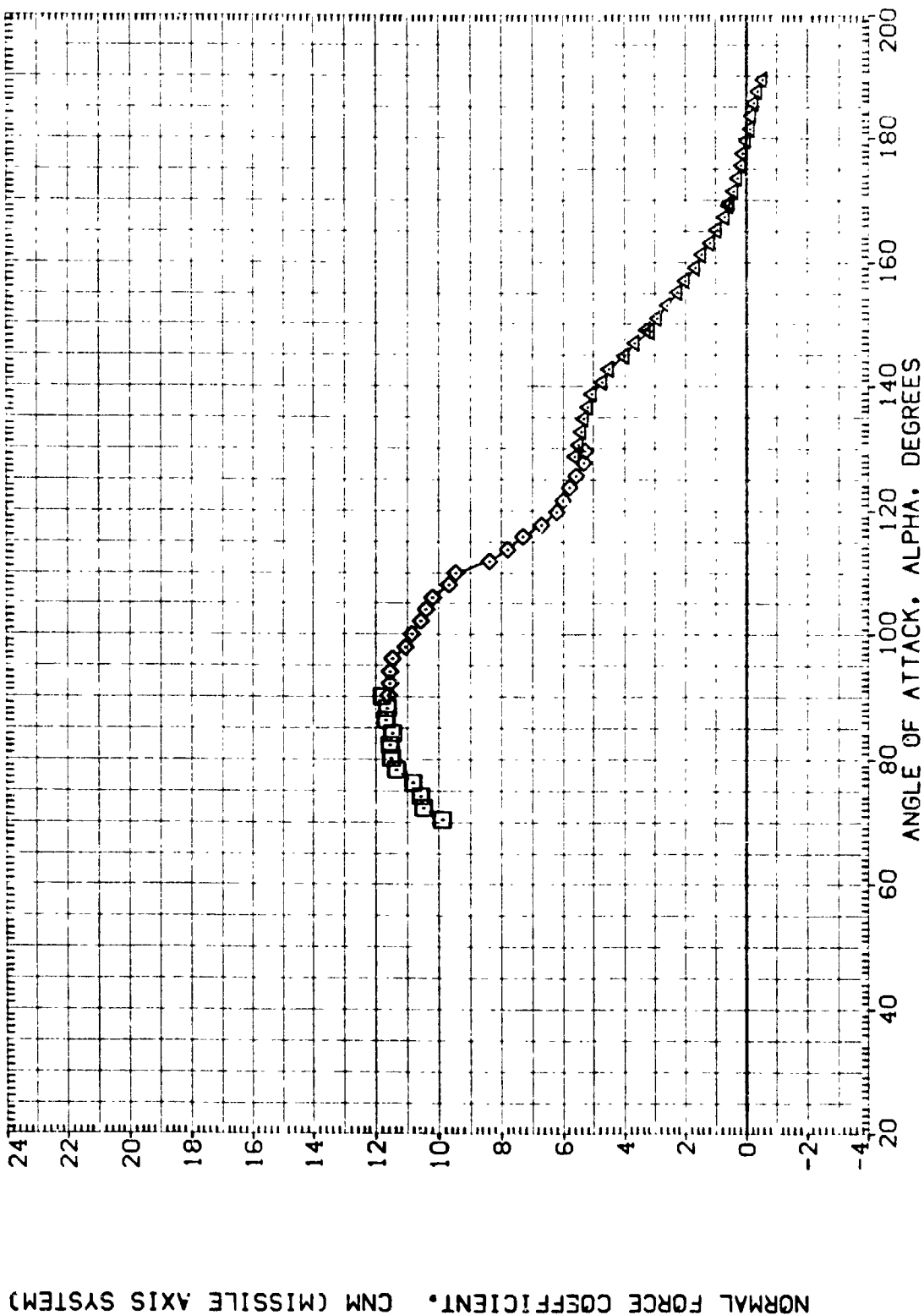
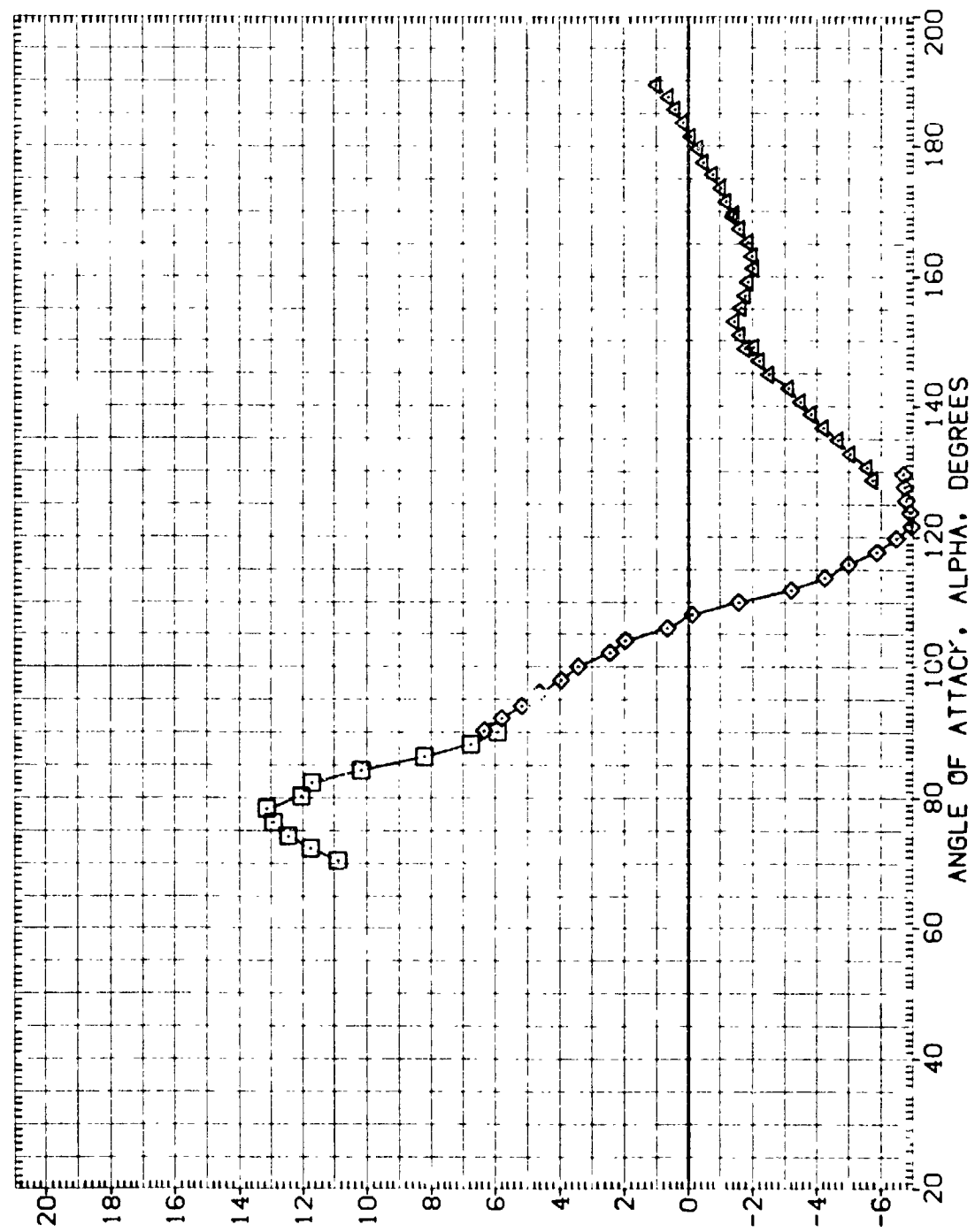


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

MACH = .40

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H005)	DATA NOT AVAILABLE	90.000	SREF	.5030	IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF	.8000	IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF	.8000	IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP	5.7210	IN. XS
			YMRP	.0000	IN. YS
			ZMRP	.0000	IN. ZS
			SCALE	.0055	



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(AIH005)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	90.000		SREF	.5030 IN.
(AIH040)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	50.000		LRREF	.8000 IN.
(AIH005)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	50.000		BREF	5.7210 IN.
(AIH005)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	50.000		YMRP	.0000 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

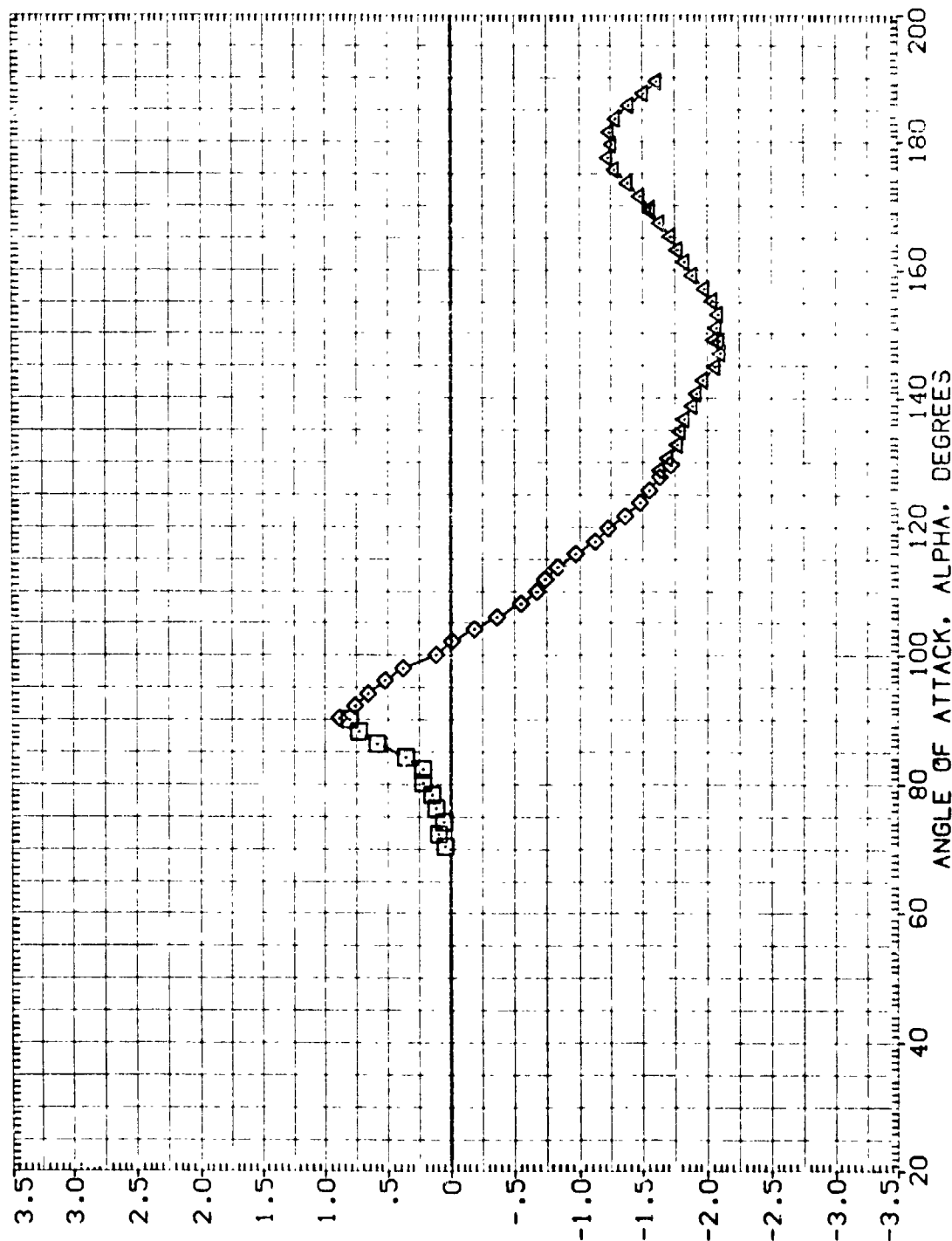


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\phi = 90^\circ$ )

(A)MACH = .40

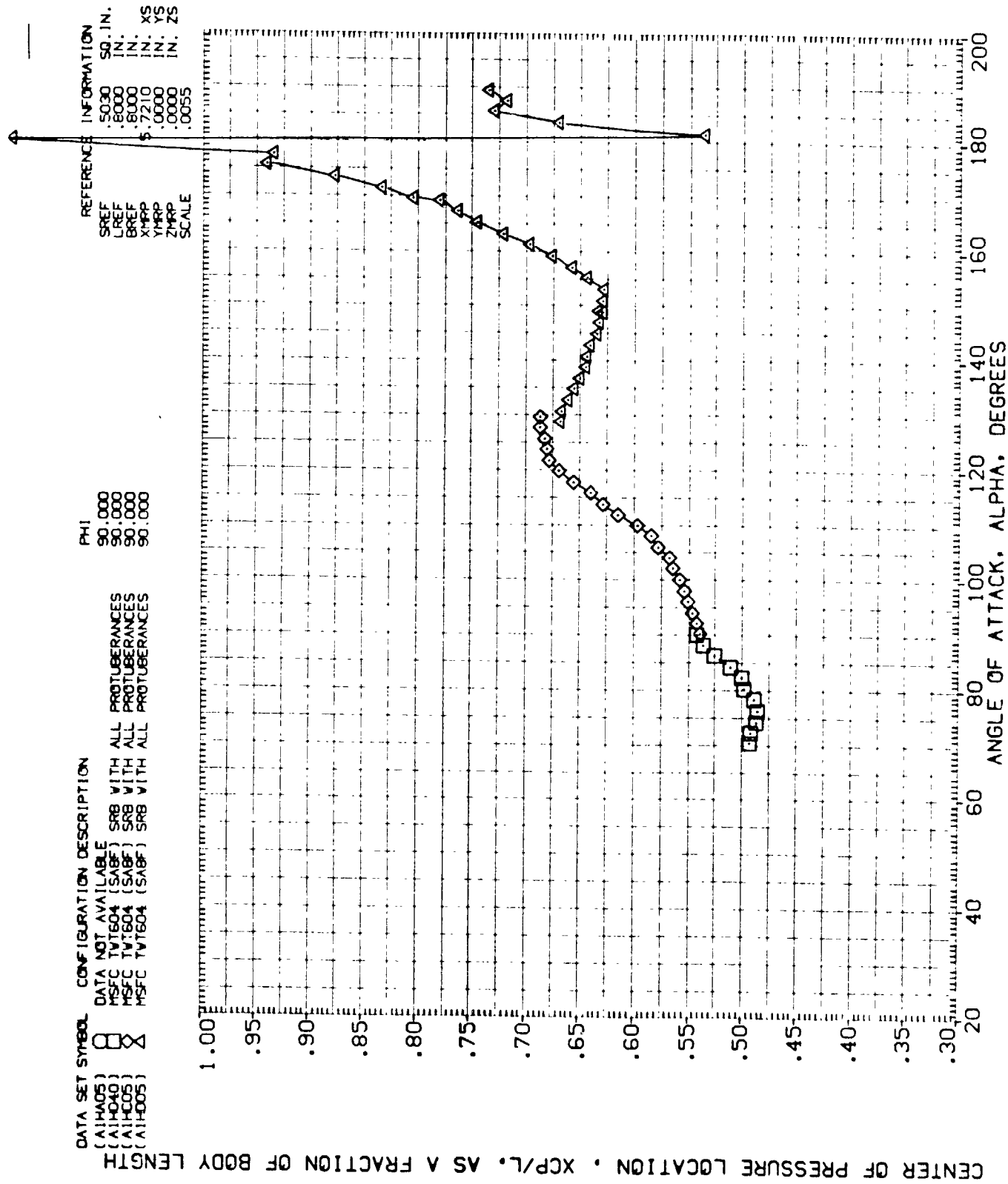


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(A)MACH = .40

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIH005)      DATA NOT AVAILABLE      90.000

(AIH000)      MSFC TVT604 (SABF)      90.000

(AIH000)      MSFC TVT604 (SABF)      90.000

(AIH005)      MSFC TVT604 (SABF)      90.000

(AIH005)      MSFC TVT604 (SABF)      90.000

REFERENCE INFORMATION

SREF      50.30      50.30 IN.

LREF      8000      IN.

BREF      8000      IN.

YMRP      5.7210      IN.      XS

ZMRP      .0000      IN.      YS

SCALE      .0055      IN.      ZS

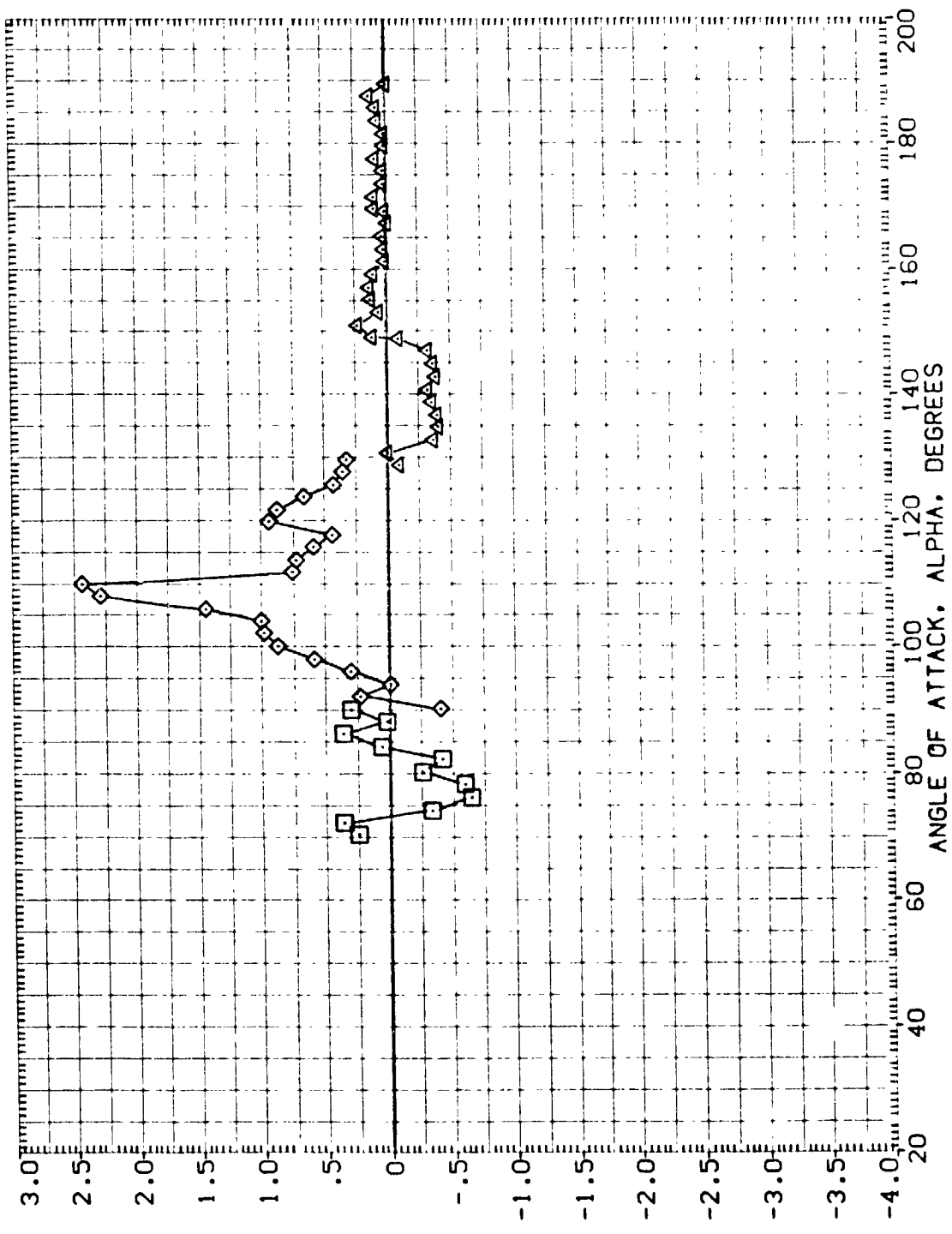


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A)M005	DATA NOT AVAILABLE	90.000	SREF	.5030	SQ. IN.
(A)M040	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF	.8000	IN.
(A)M005	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF	.8000	IN.
(A)M005	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP	5.7210	IN. XS
			YMRP	.0000	IN. YS
			ZMRP	.0000	IN. ZS
			SCALE	.0055	

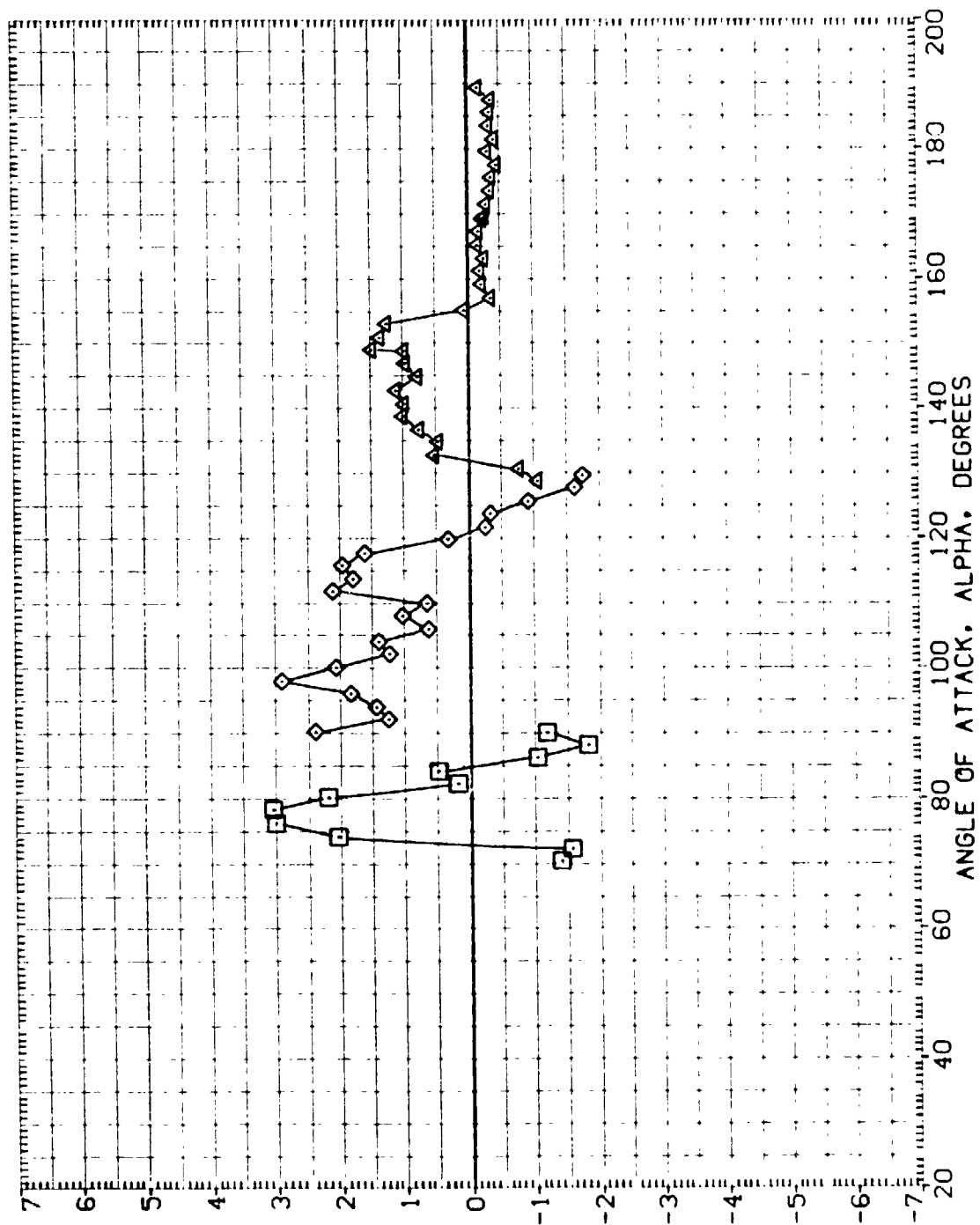


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(A)MACH = .40

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H005)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES

(A1H040)      MSFC TVT804 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H005)      MSFC TVT804 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H005)      MSFC TVT804 (SABF)      SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

REFERENCE INFORMATION

SREF      5030      50. IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5.7210      IN. XS

YMRP      .0000      IN. YS

ZMRP      .0000      IN. ZS

SCALE      .0055

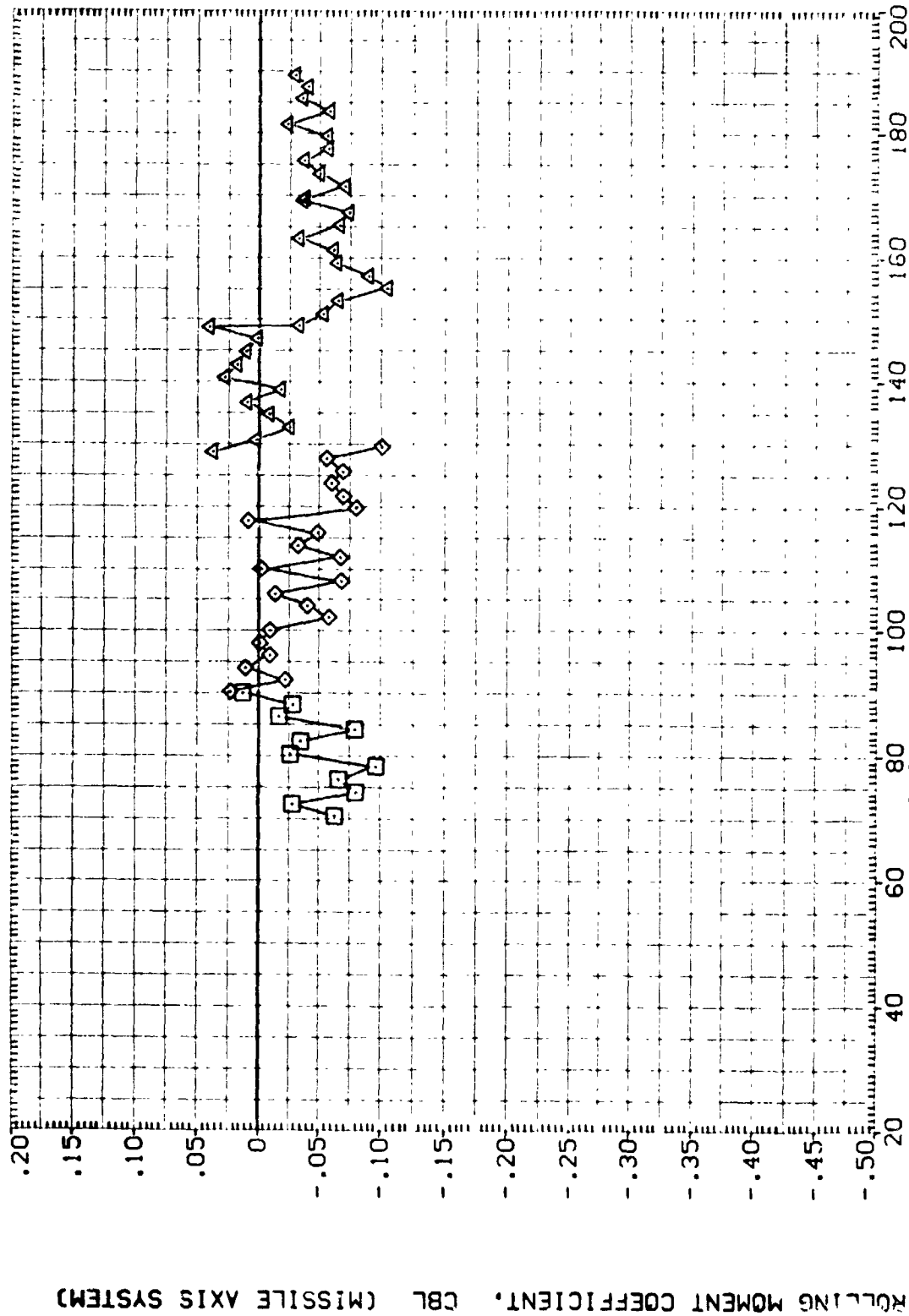


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH005)	DATA NOT AVAILABLE	90.000	SREF .5030 IN.
(AIH040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055 IN.

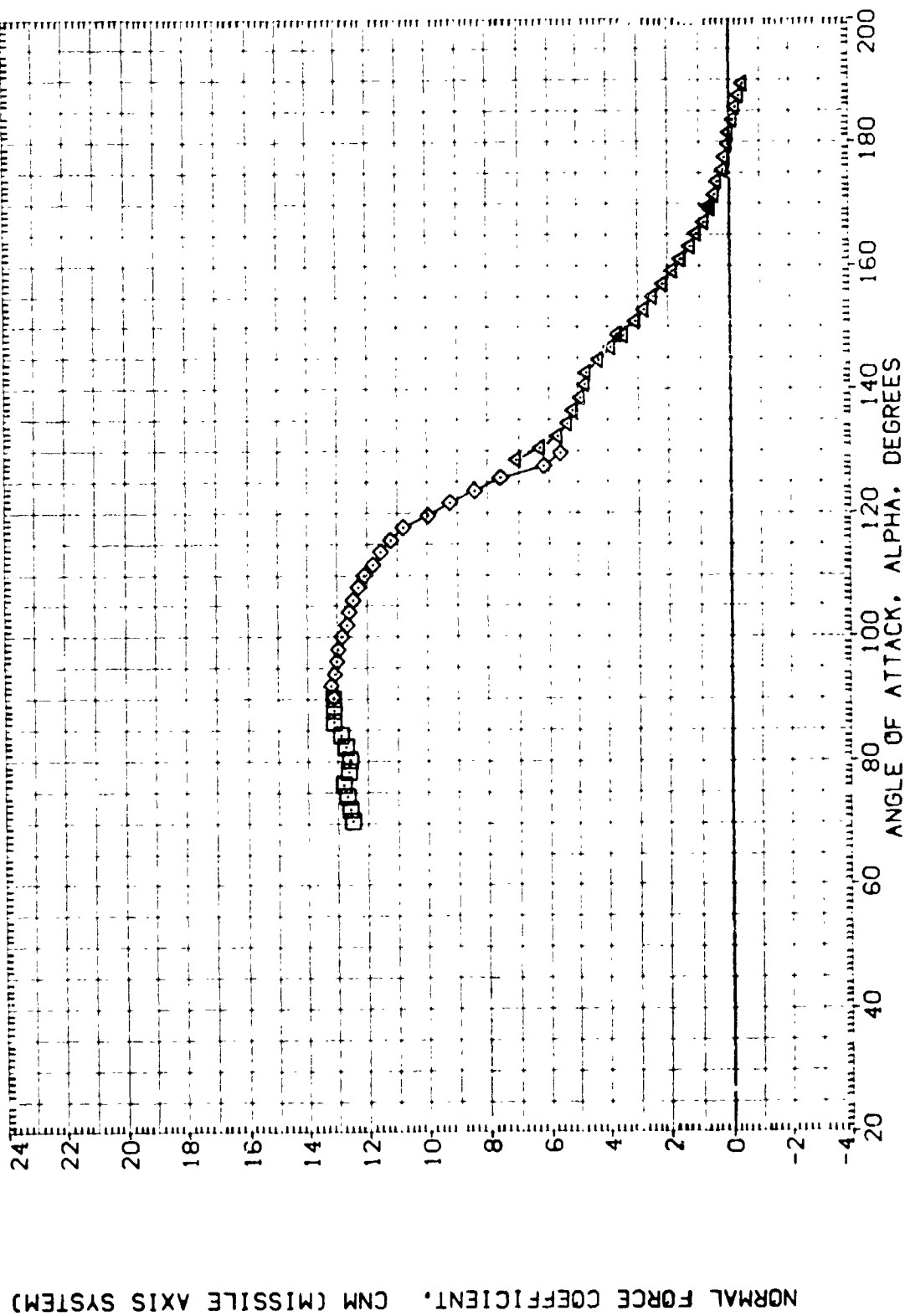


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

(8)MACH = .60



DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1-HA05)      DATA NOT AVAILABLE

(A1-H040)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1-H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1-H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

90.000

REFERENCE INFORMATION

SREF      50.30      SQ. IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5.7210      IN.      XS

YMRP      .0000      IN.      YS

ZMRP      .0000      IN.      ZS

SCALE      .0055

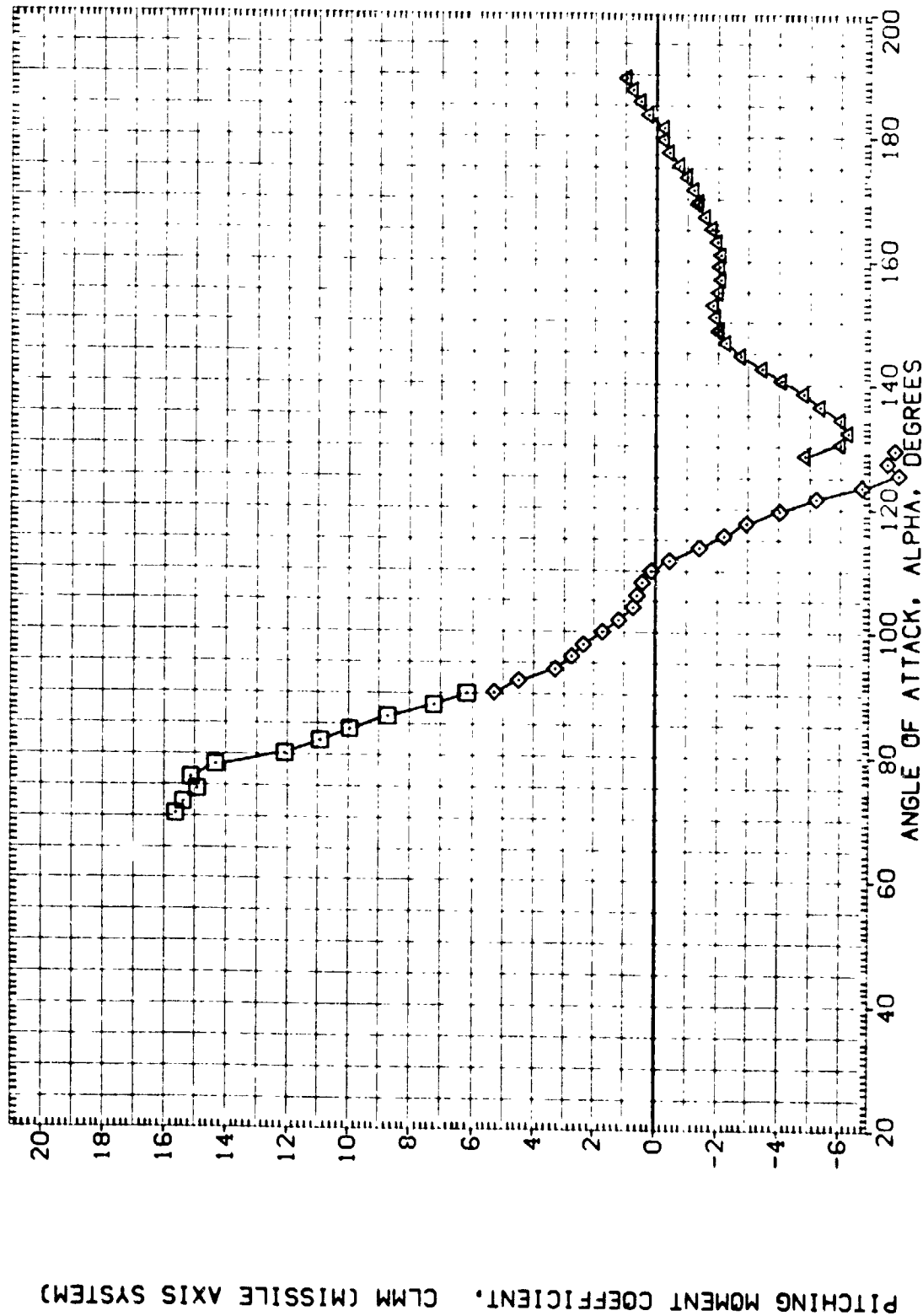


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH005)	DATA NOT AVAILABLE	90.000	SREF .5030 IN.
(AIH040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .0000 IN.
(AIHC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

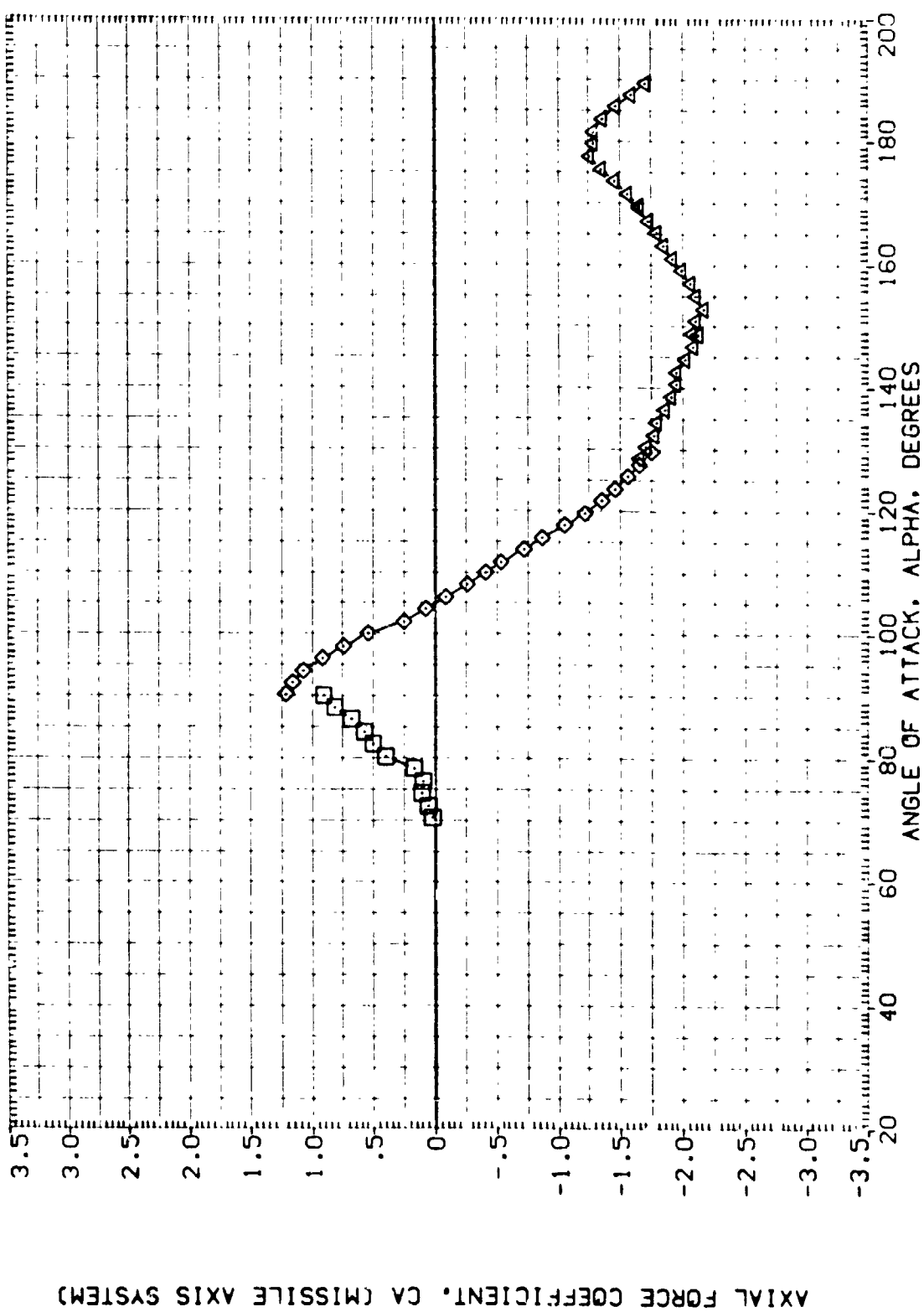


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

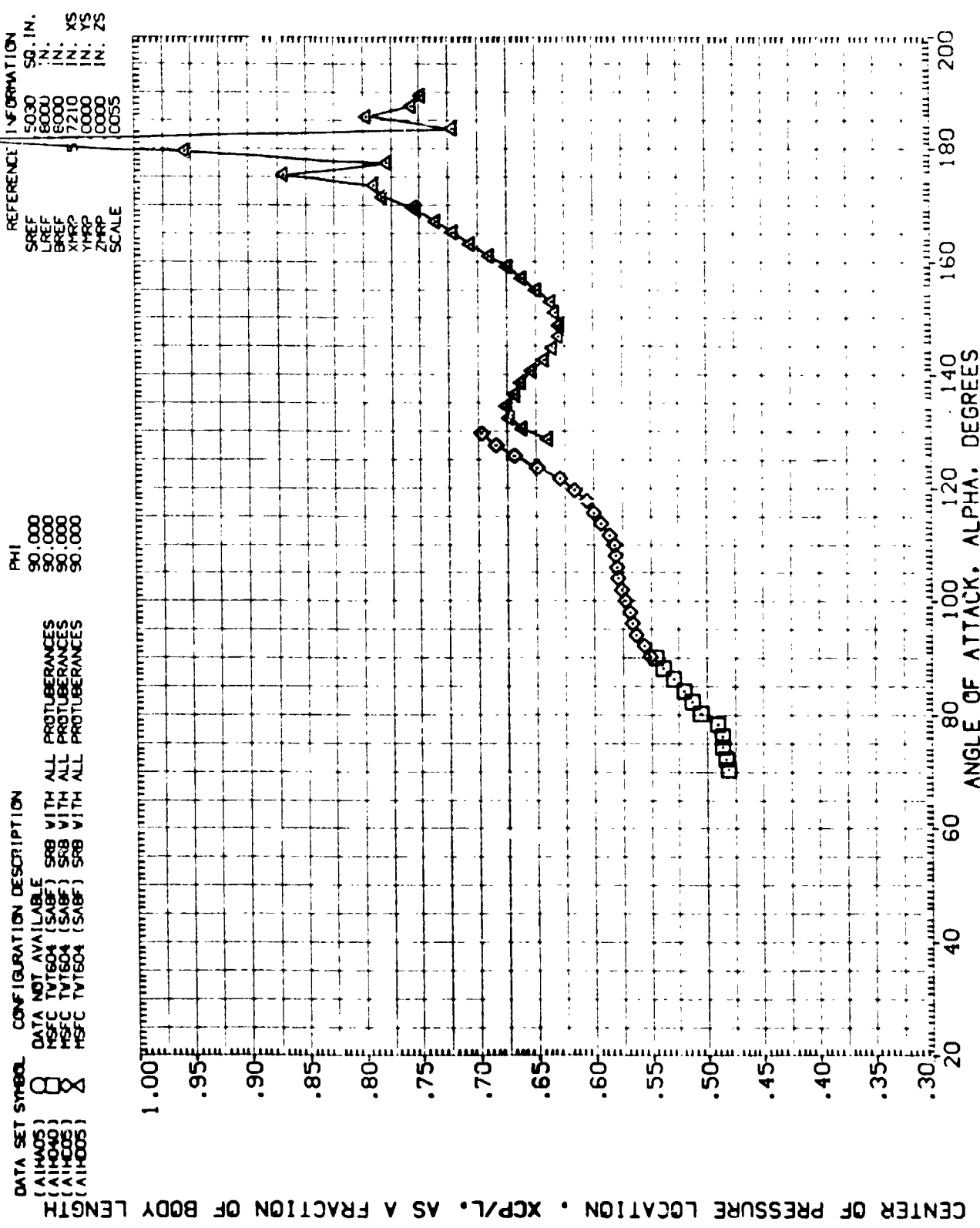


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	90.000	SREF .5030 SQ. IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .6000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

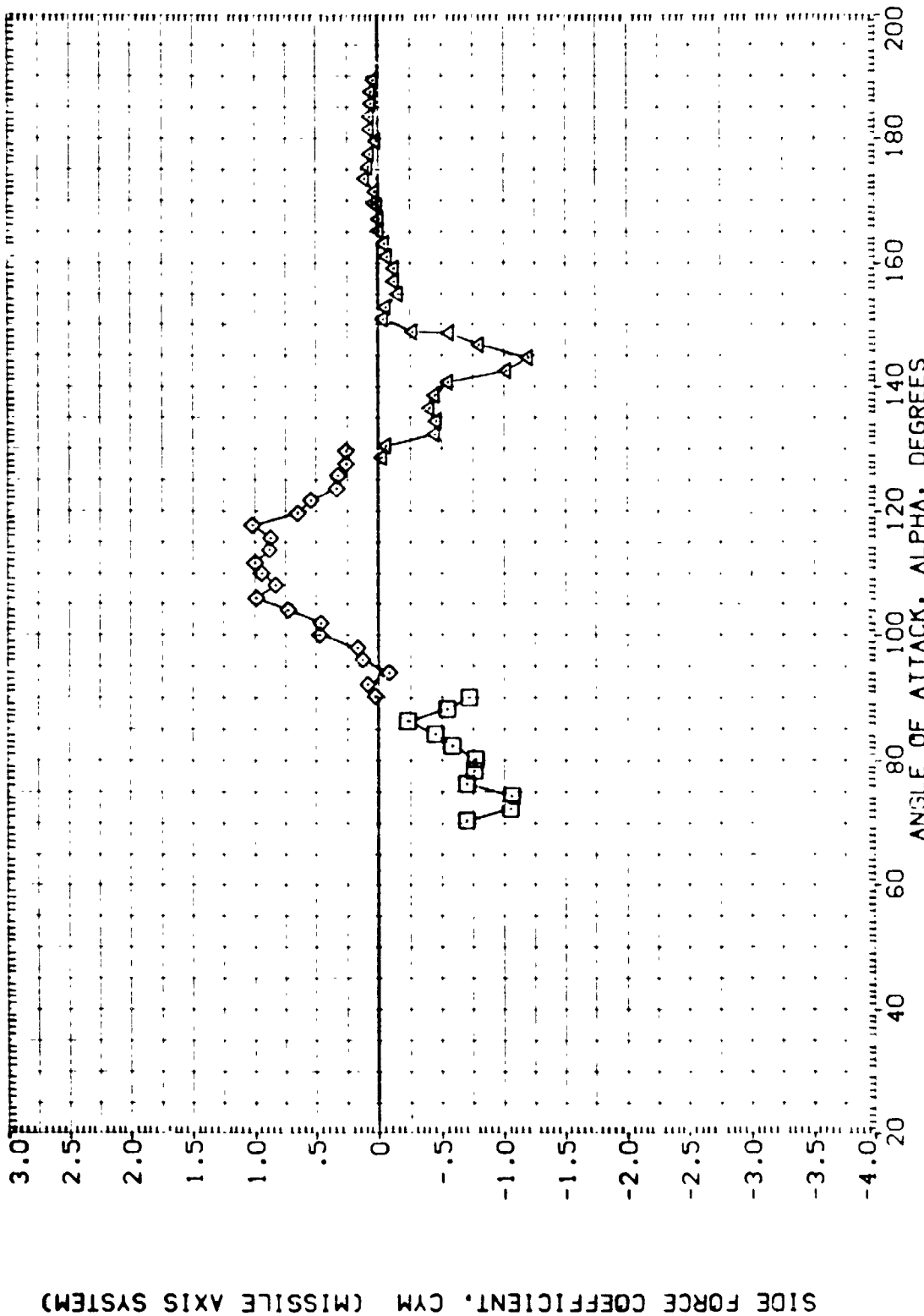


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\Phi = 90^\circ$ )

REFERENCE INFORMATION  
 SREF 50.00 IN.  
 LREF 100.00 IN.  
 BREF 100.00 IN.  
 XMRP 5.7210 IN.  
 YMRP 100.00 IN.  
 ZMRP 100.00 IN.  
 SCALE .0055

PHI  
 90.000  
 90.000  
 90.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H005) DATA NOT AVAILABLE  
 (A1H040) MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES  
 (A1H005) MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES  
 (A1H005) MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES

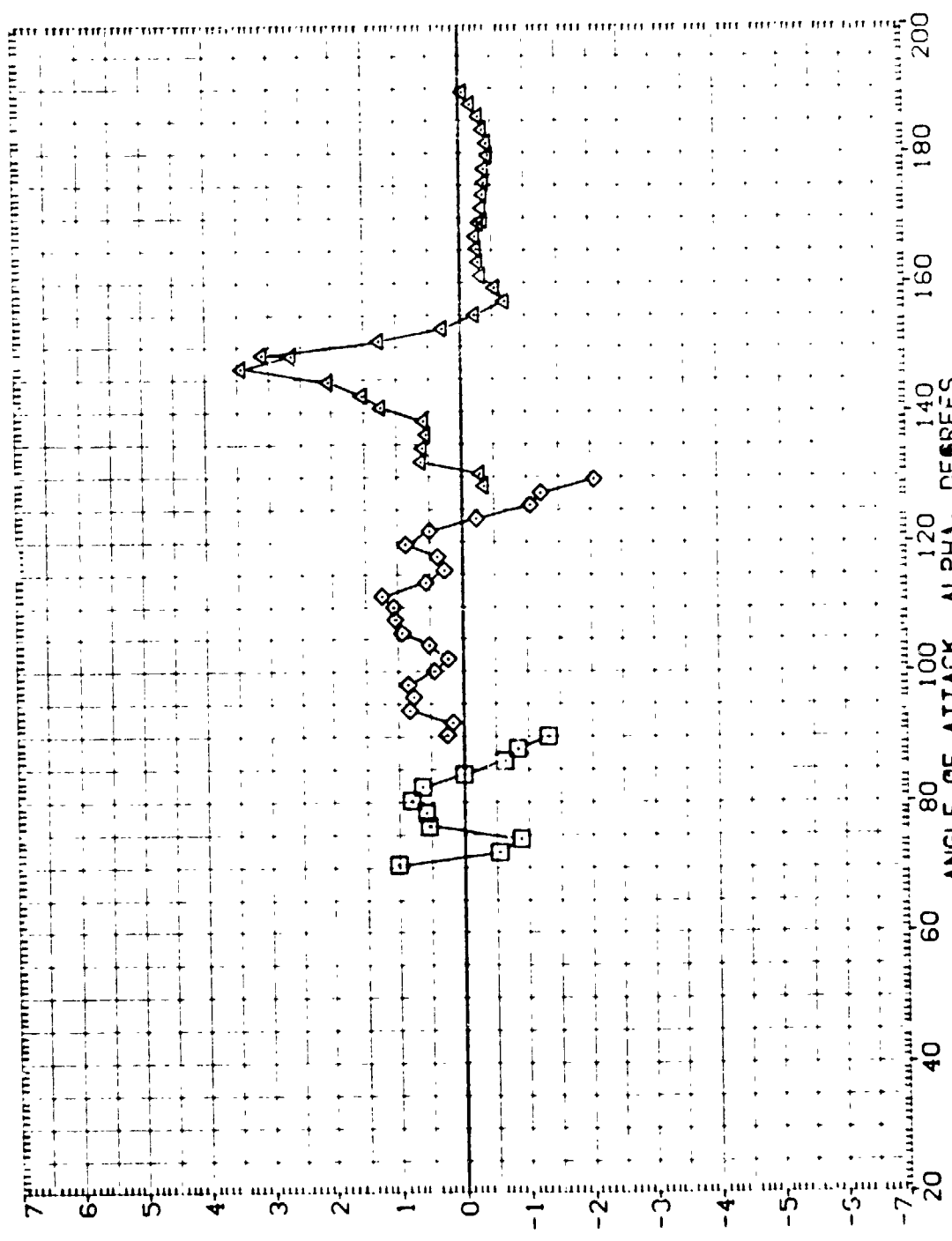


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(B) MACH = .60

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H405)    DATA NOT AVAILABLE    90.000

(A1H404)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

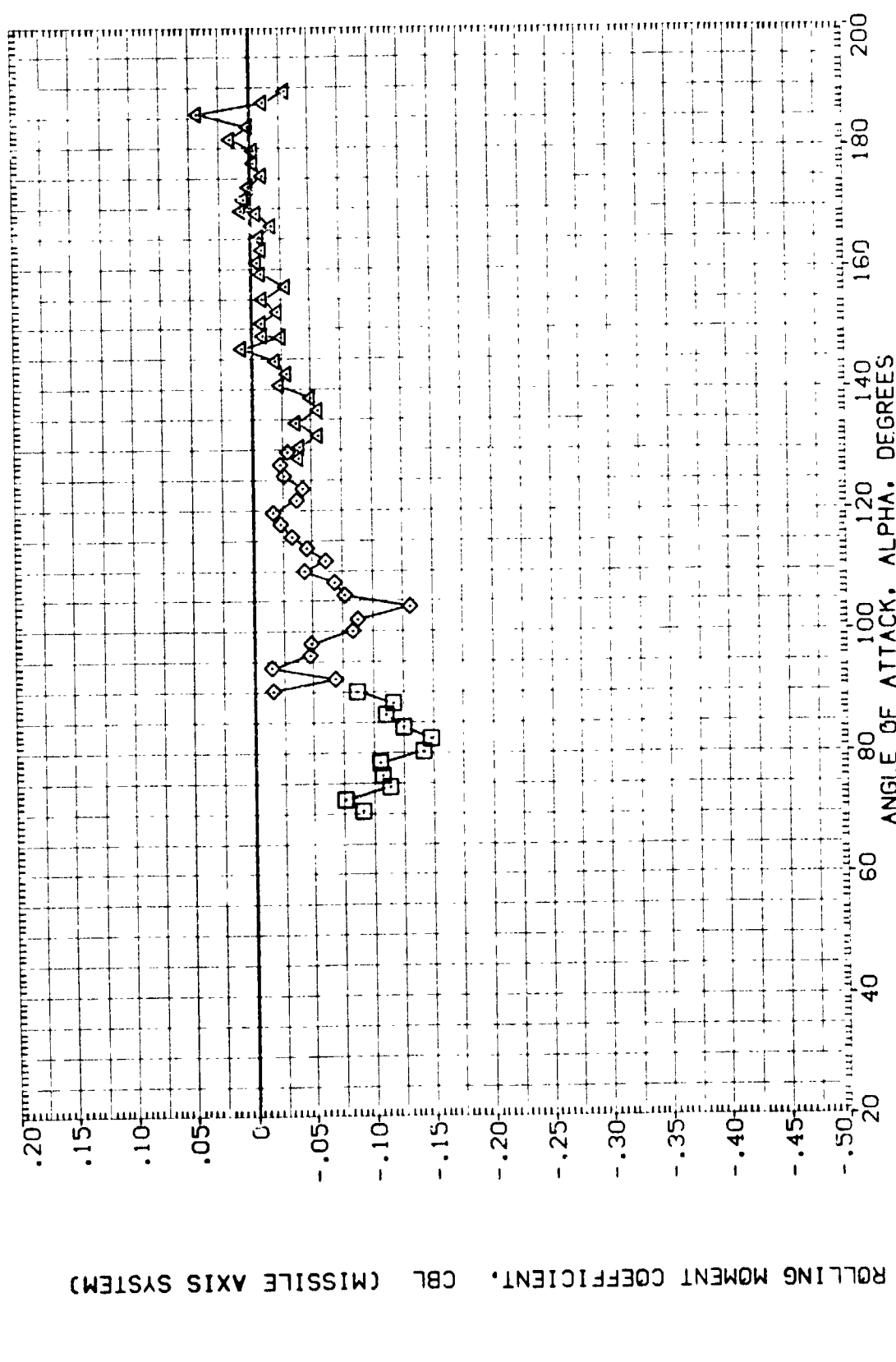


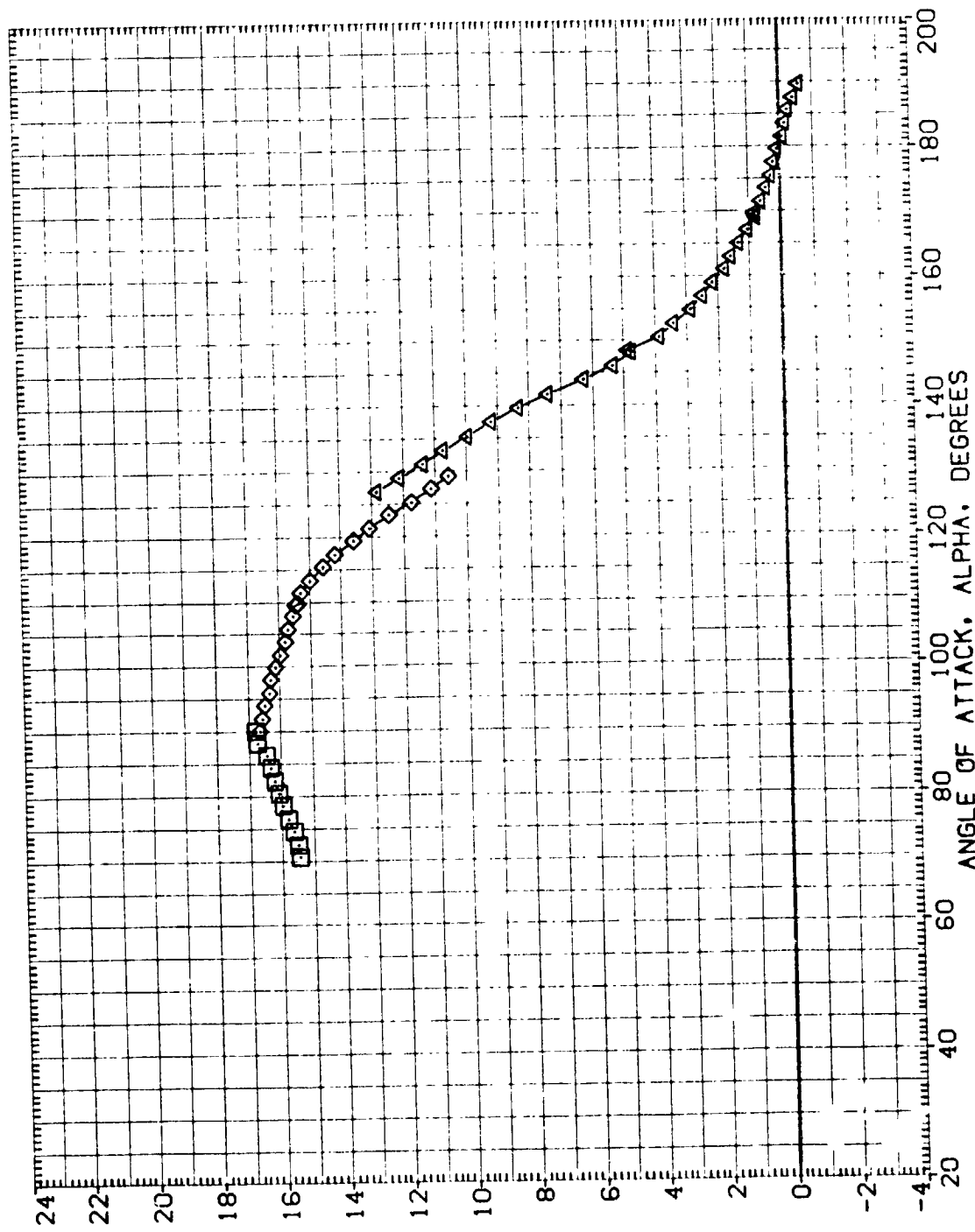
FIGURE 21. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 90)

(B)MACH = .60

REFERENCE INFORMATION  
 SREF .5000 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN.  
 YMRP .0000 IN.  
 ZMRP .0000 IN.  
 SCALE .0055

PHI  
 90.000  
 90.000  
 90.000  
 90.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H405) DATA NOT AVAILABLE SRB WITH ALL PROTUBERANCES  
 (A1H404) MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H405) MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H405) MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES



NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(C, ACH = .90

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

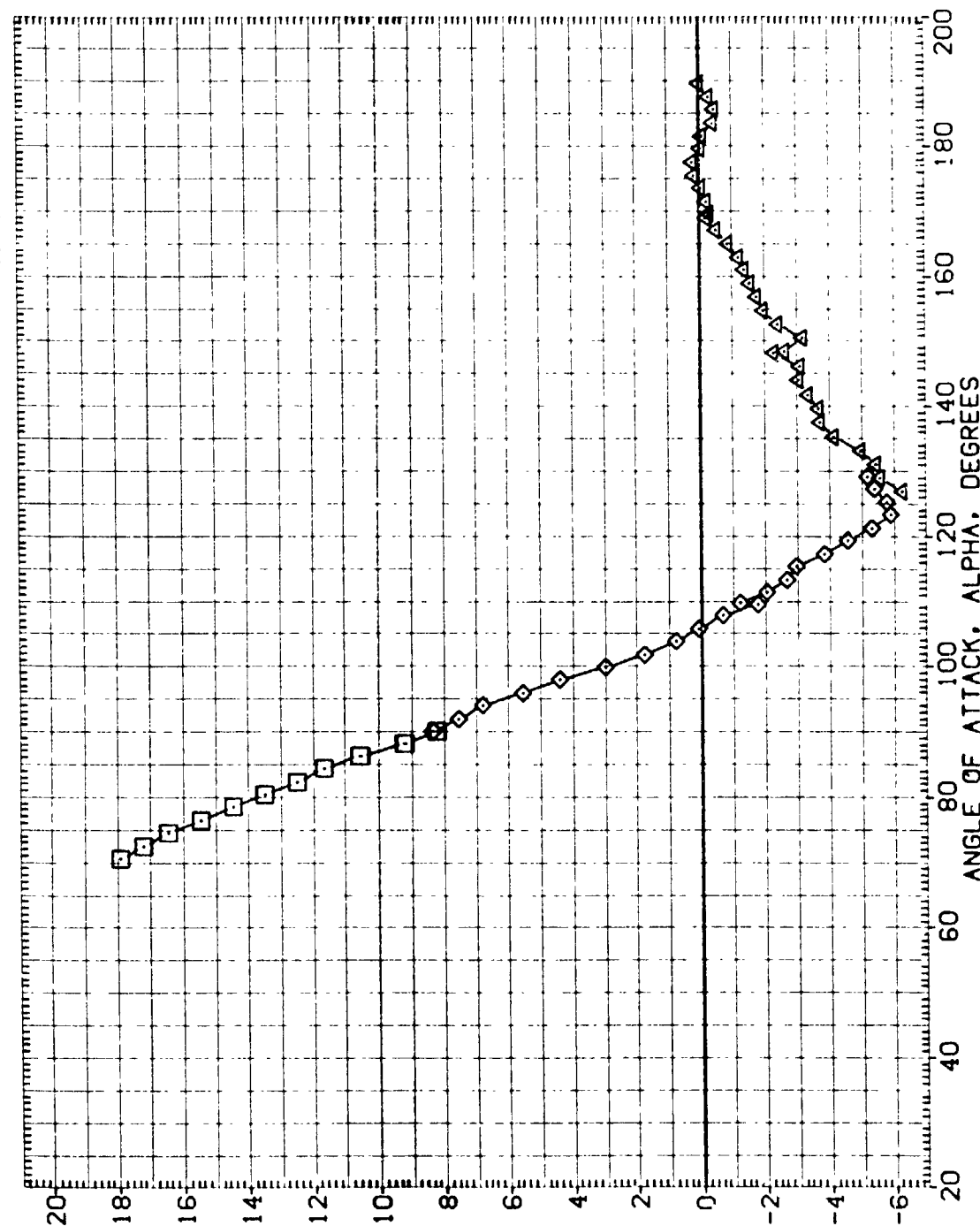
PHI

90.000
90.000
90.000

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(AIHQ05)	DATA NOT AVAILABLE
(AIHQ04)	MSFC TVT604 (SA3F) SRB WITH ALL PROTUBERANCES
(AIHQ05)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES
(AIHQ06)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)





DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H005)      DATA NOT AVAILABLE

(A1H040)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

REFERENCE INFORMATION

SREF      5030      50. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN.      XS

YMRP      .0000      IN.      YS

ZMRP      .0000      IN.      ZS

SCALE      .0055

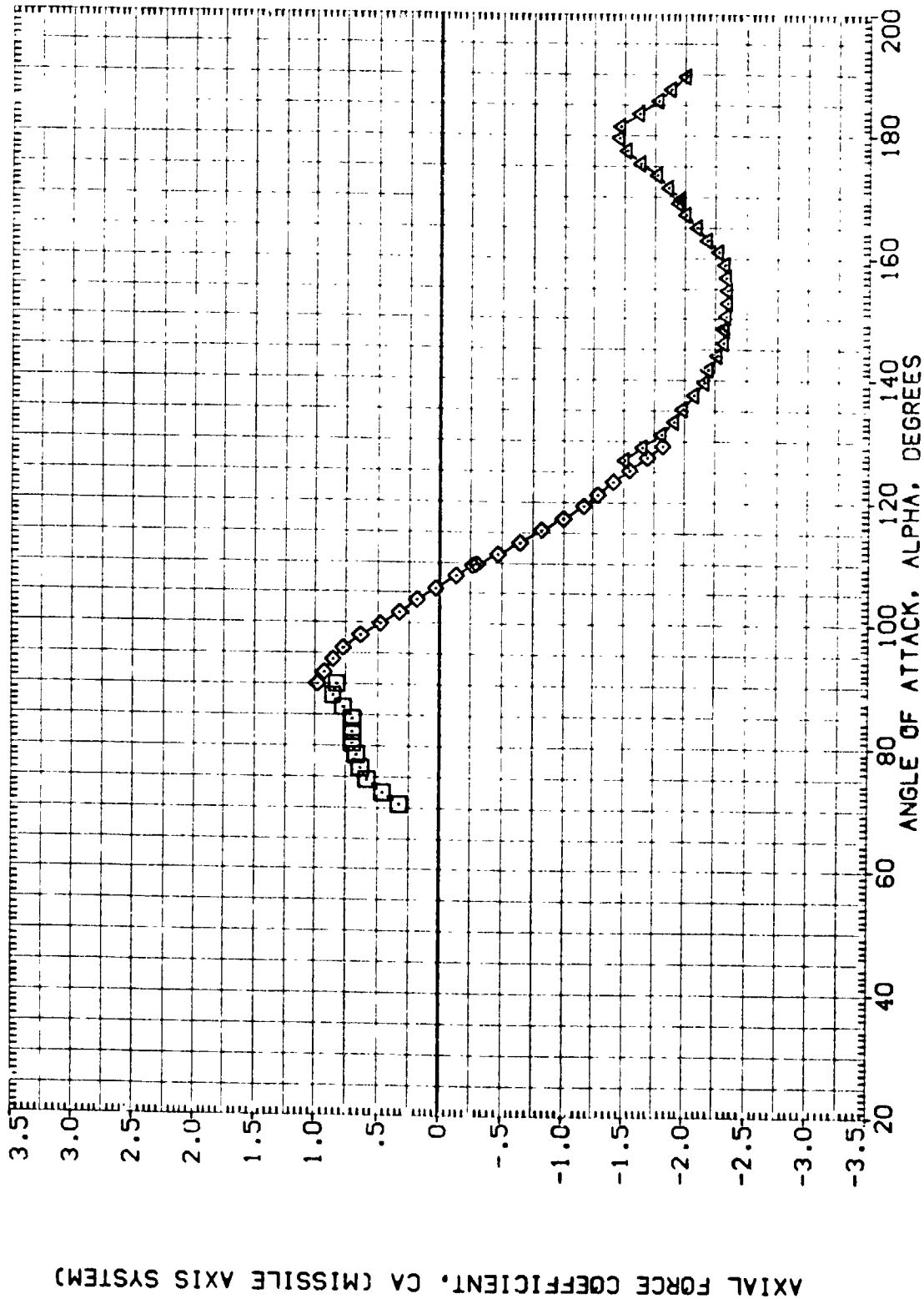


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(C)MACH = .90

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XHRP 5.7210 IN. XS  
 YHRP .0000 IN. YS  
 ZHRP .0000 IN. ZS  
 SCALE .0055

PHI  
 90.000  
 90.000  
 90.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H005) DATA NOT AVAILABLE  
 (A1H040) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H005) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H005) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

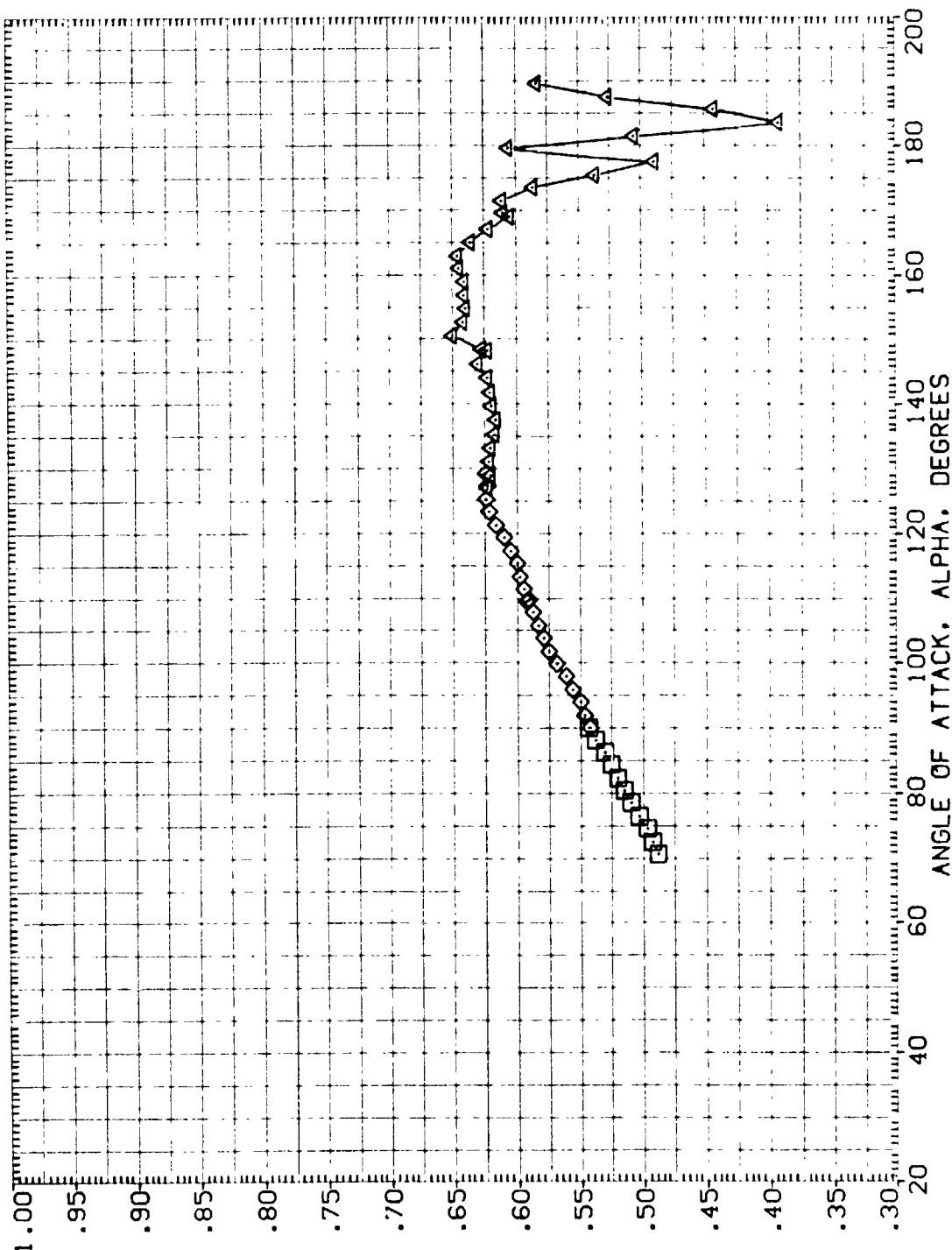


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

(C)MACH = .90

DATA SET SYMBOL    CONFIGURATION DESCRIPTION

(A1H005)    DATA NOT AVAILABLE    SRB WITH ALL PROTUBERANCES

(A1H040)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

(A1H005)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

(A1H005)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

REFERENCE INFORMATION

SREF    .5030    IN.

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

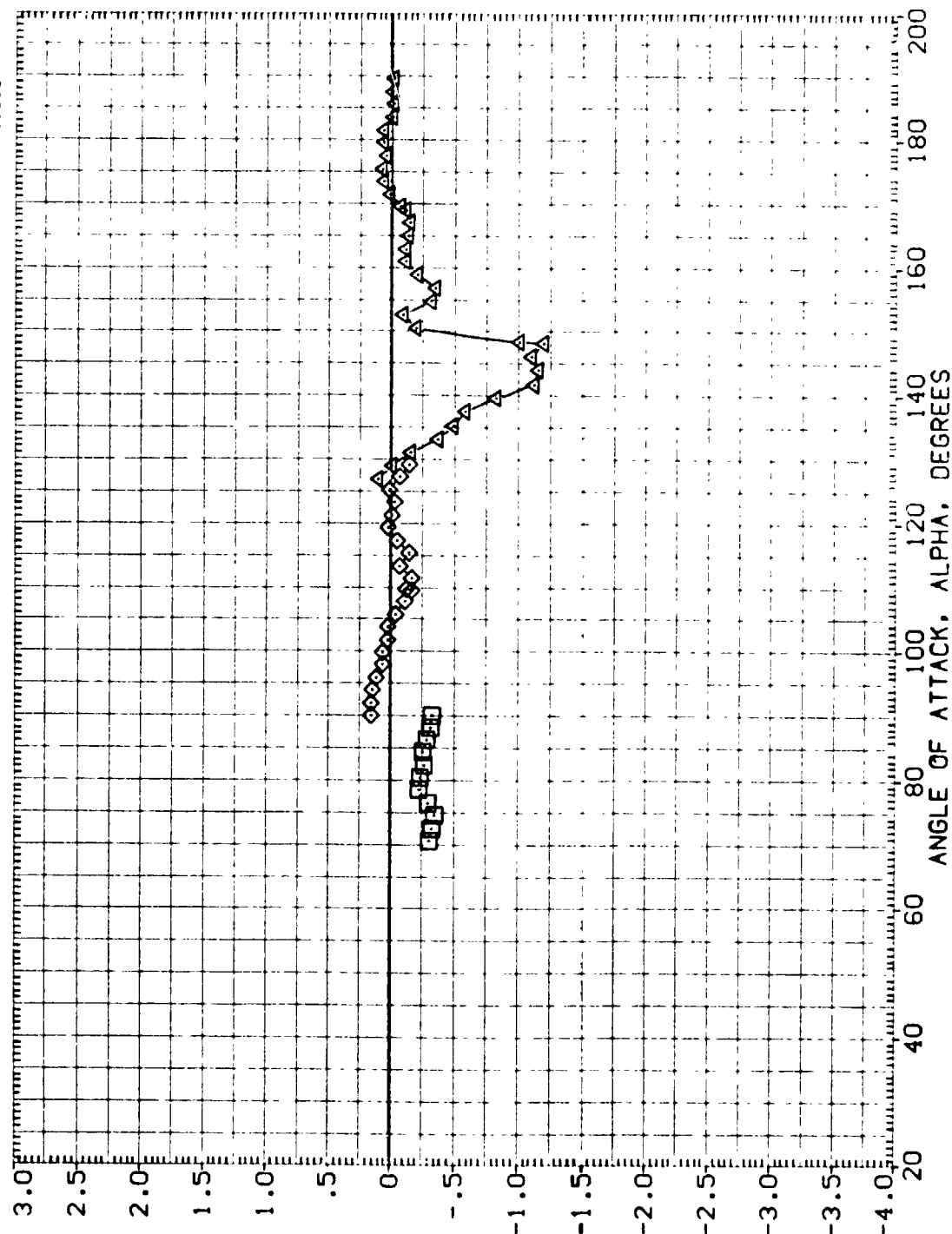


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(C)MACH = .90

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H405)    DATA NOT AVAILABLE    90.000    SREF    .50/30    SQ. IN.

(A1H404)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    LREF    .8000    IN.

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    BREF    .8000    IN.

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    XMRP    5.7210    IN. XS

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    YMRP    .0000    IN. YS

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    ZMRP    .0000    IN. ZS

(A1H405)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000    SCALE    .0055

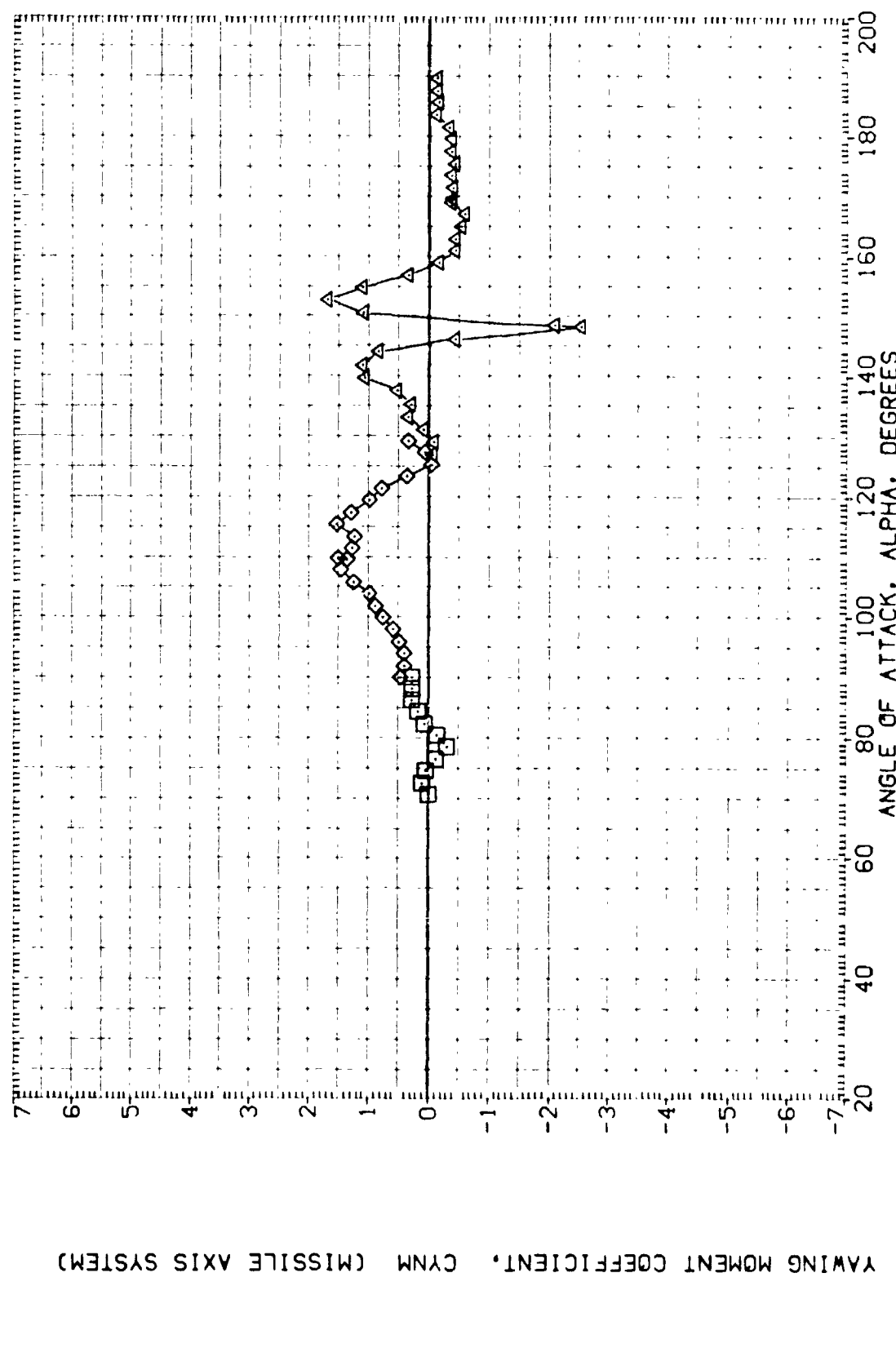


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	90.000	SREF .5030 50. IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

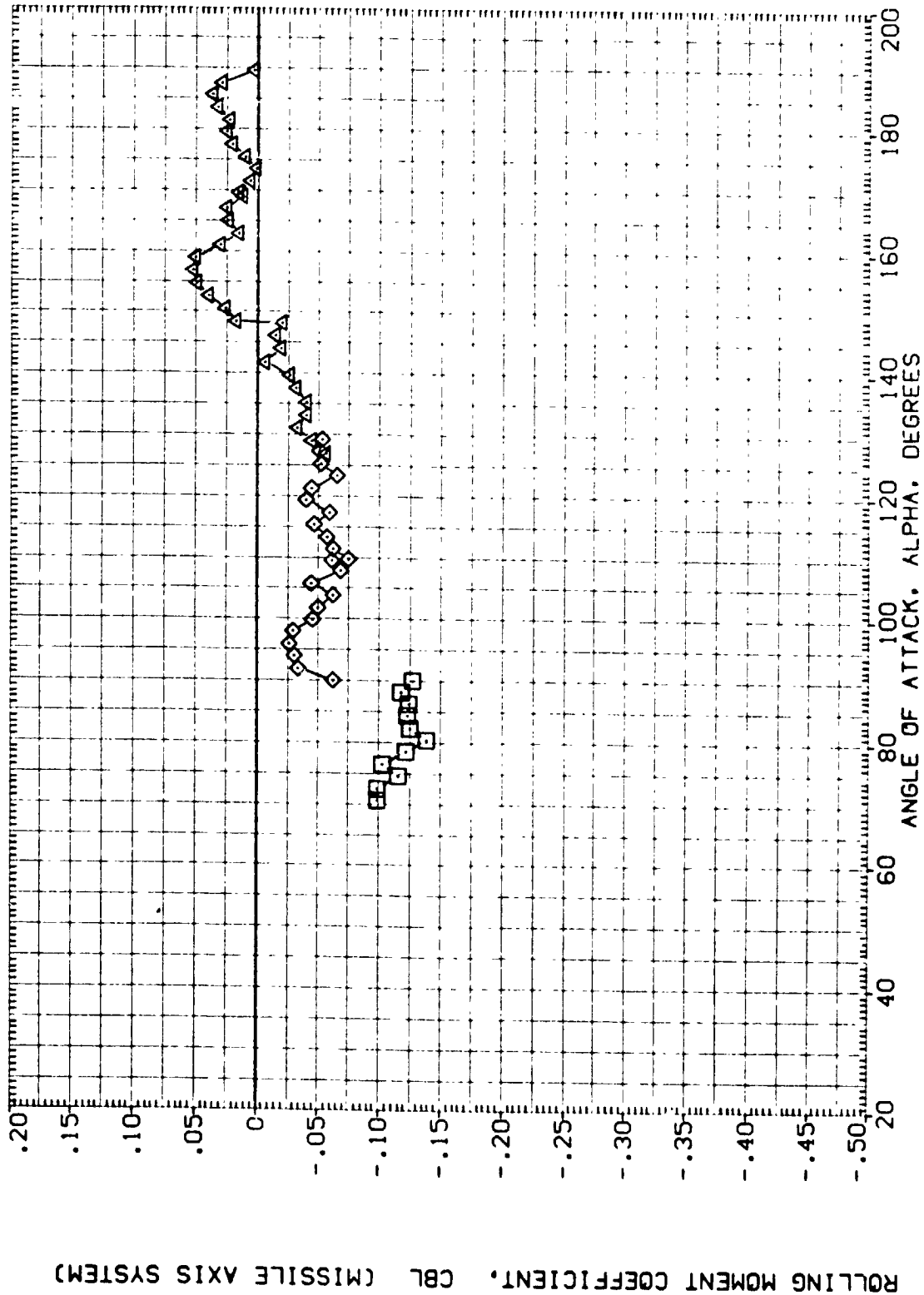


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

(C)MACH = .90

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H003)	DATA NOT AVAILABLE	90.000	SREF	.5030	IN.
(A1H004)	MSFC TVT804 (SABF)	90.000	LREF	.8000	IN.
(A1H005)	MSFC TVT804 (SABF)	90.000	BREF	.8000	IN.
(A1H006)	MSFC TVT804 (SABF)	90.000	XREF	5.7210	IN.
(A1H007)	MSFC TVT804 (SABF)	90.000	YREF	.0000	IN.
(A1H008)	MSFC TVT804 (SABF)	90.000	ZREF	.0000	IN.
(A1H009)	MSFC TVT804 (SABF)	90.000	SCALE	.0055	IN.

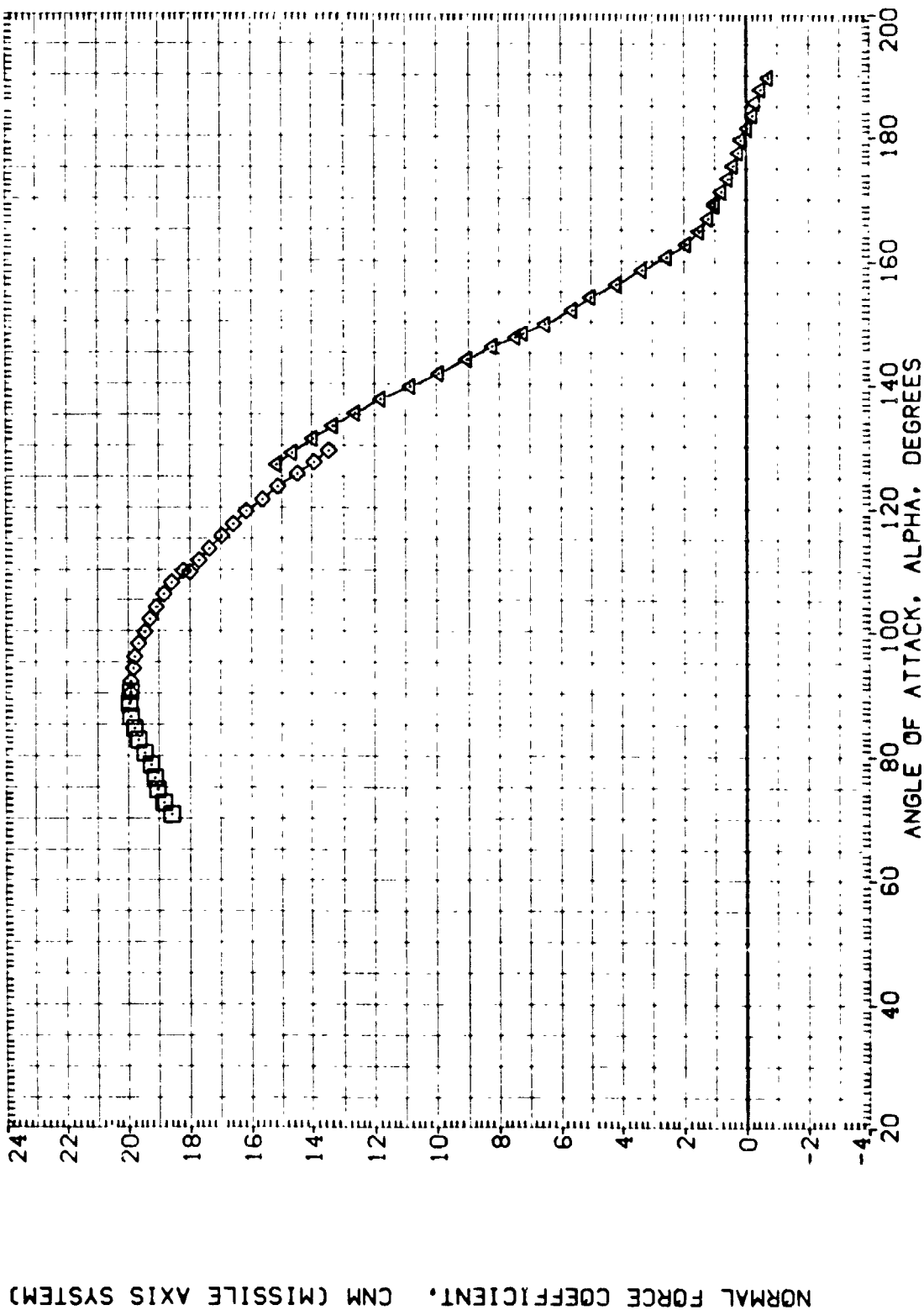


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90°)  
 (O) MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION

(A1H005)    DATA NOT AVAILABLE    SRB WITH ALL PROTUBERANCES

(A1H040)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

(A1H005)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

(A1H005)    MSFC TVT604 (SABF)    SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

REFERENCE INFORMATION

SREF    5030    50. IN.

LREF    16000    IN.

BREF    16000    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .005%

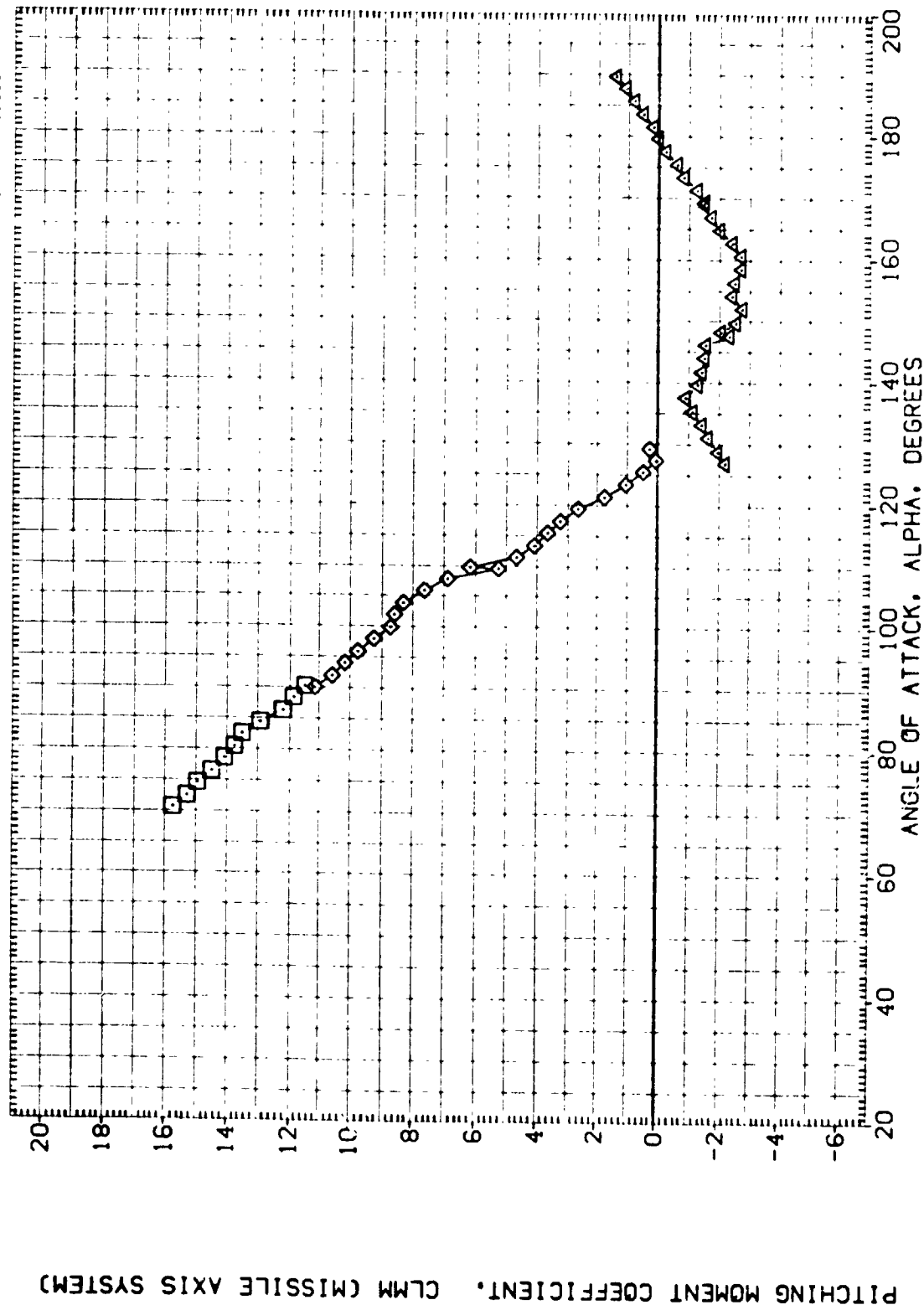


FIGURE 21. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	DATA NOT AVAILABLE	90.000	SREF .5030 SQ. IN.
(A1H406)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H407)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H408)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
(A1H409)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

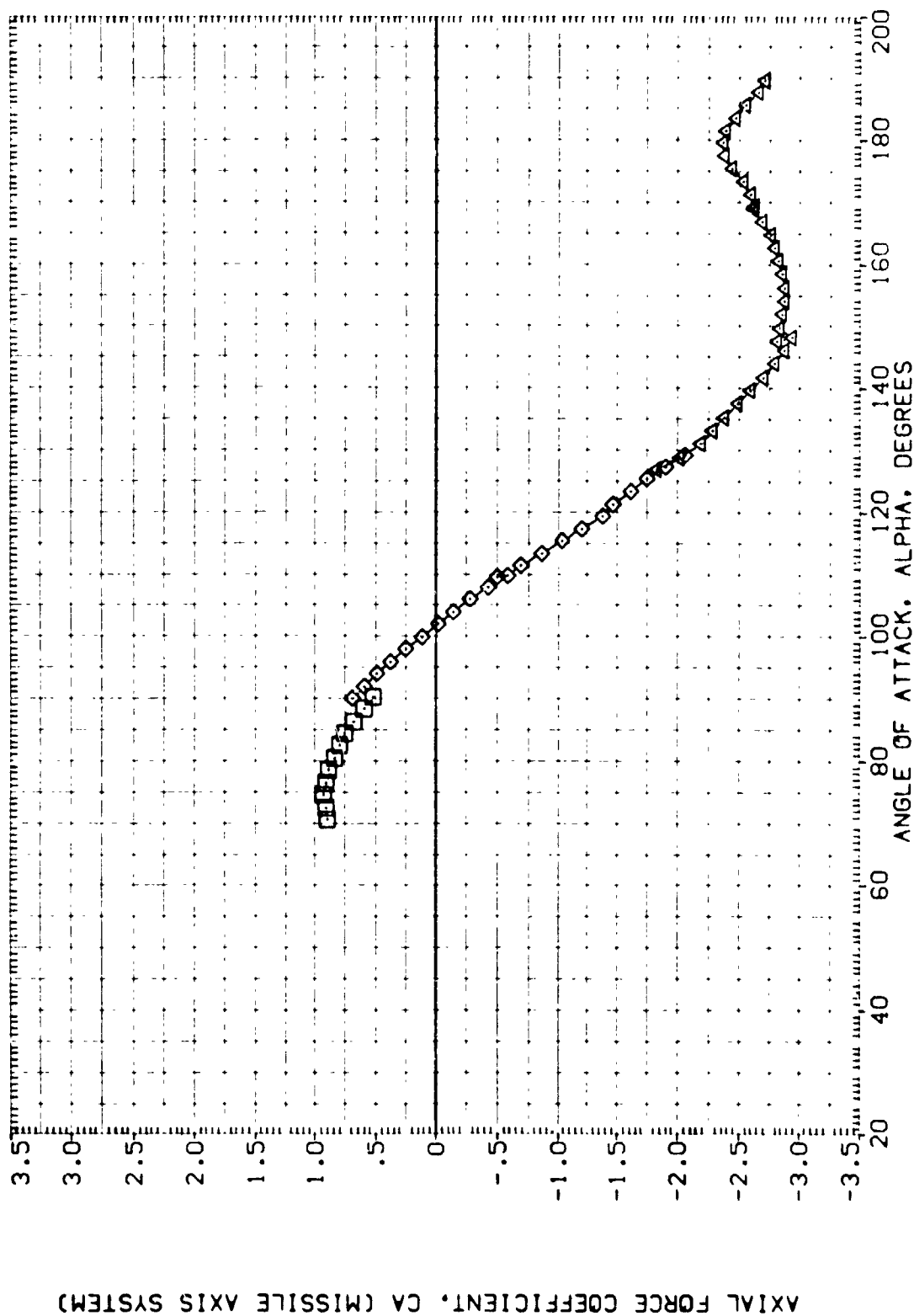


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(O)MACH = 1.20



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A11-A05)      DATA NOT AVAILABLE      90.000

(A11-H040)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A11-H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A11-H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

REFERENCE INFORMATION

SREF .5030 IN. XS

LREF .6000 IN. YS

BREF .6000 IN. ZS

YMRP 5.7210 IN. XS

ZMRP .0000 IN. YS

SCALE .0055

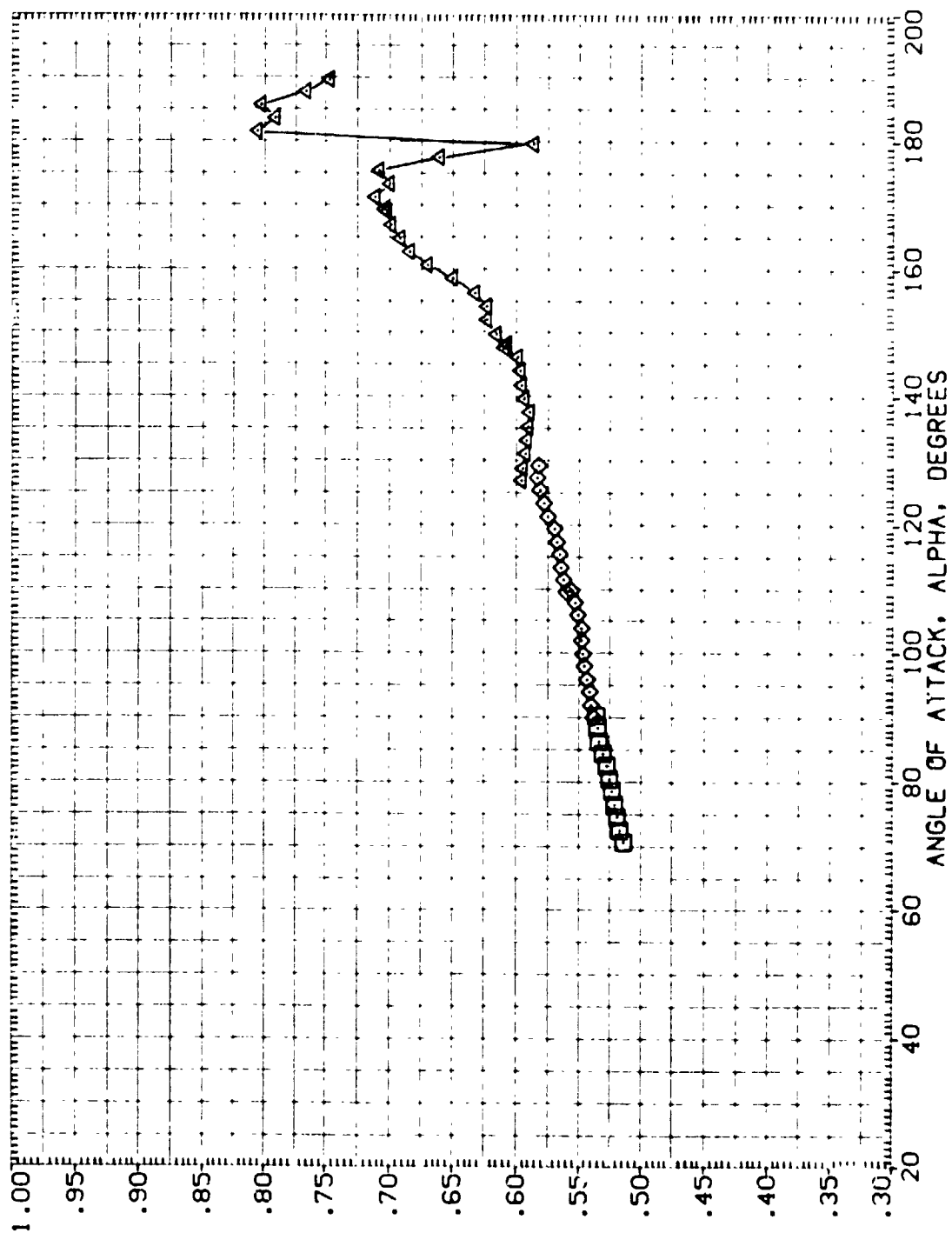


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(C)MACH = 1.20

DATA SET SYMBOL	CONF. DESCRIPTION	PHI	REFERENCE INFORMATION
(A1-H005)	DATA NOT AVAILABLE	90.000	SREF .5030 SQ. IN.
(A1-H040)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1-H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1-H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

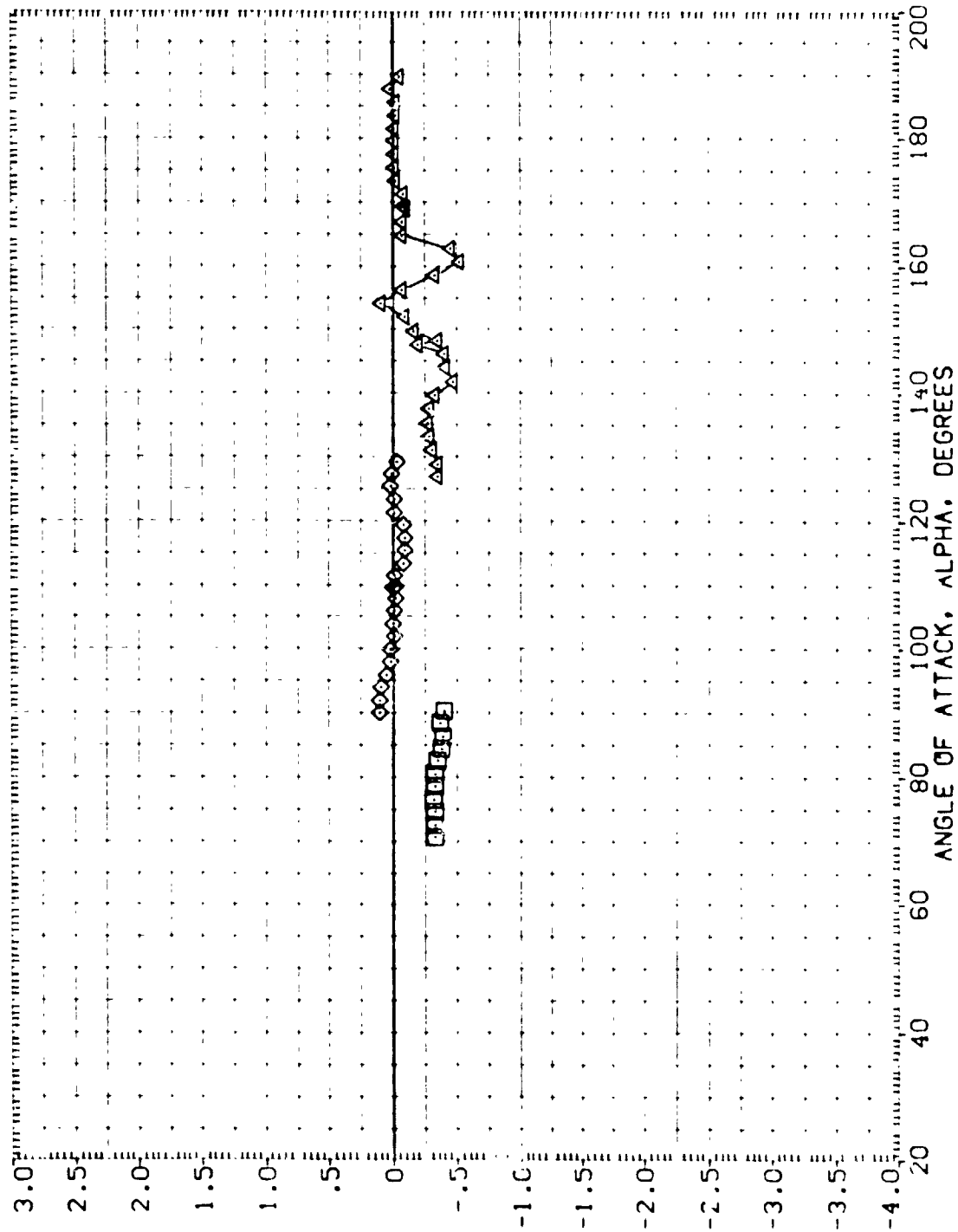


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 90)

(0)MACH = 1.20

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H405)		DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	90.000		SREF	5030
(A1H405)		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		YREF	8.000
(A1H405)		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		XREF	8.000
(A1H405)		MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		YPRP	5.7210
						XPRP	0.000
						ZPRP	0.000
						SCALE	0.055

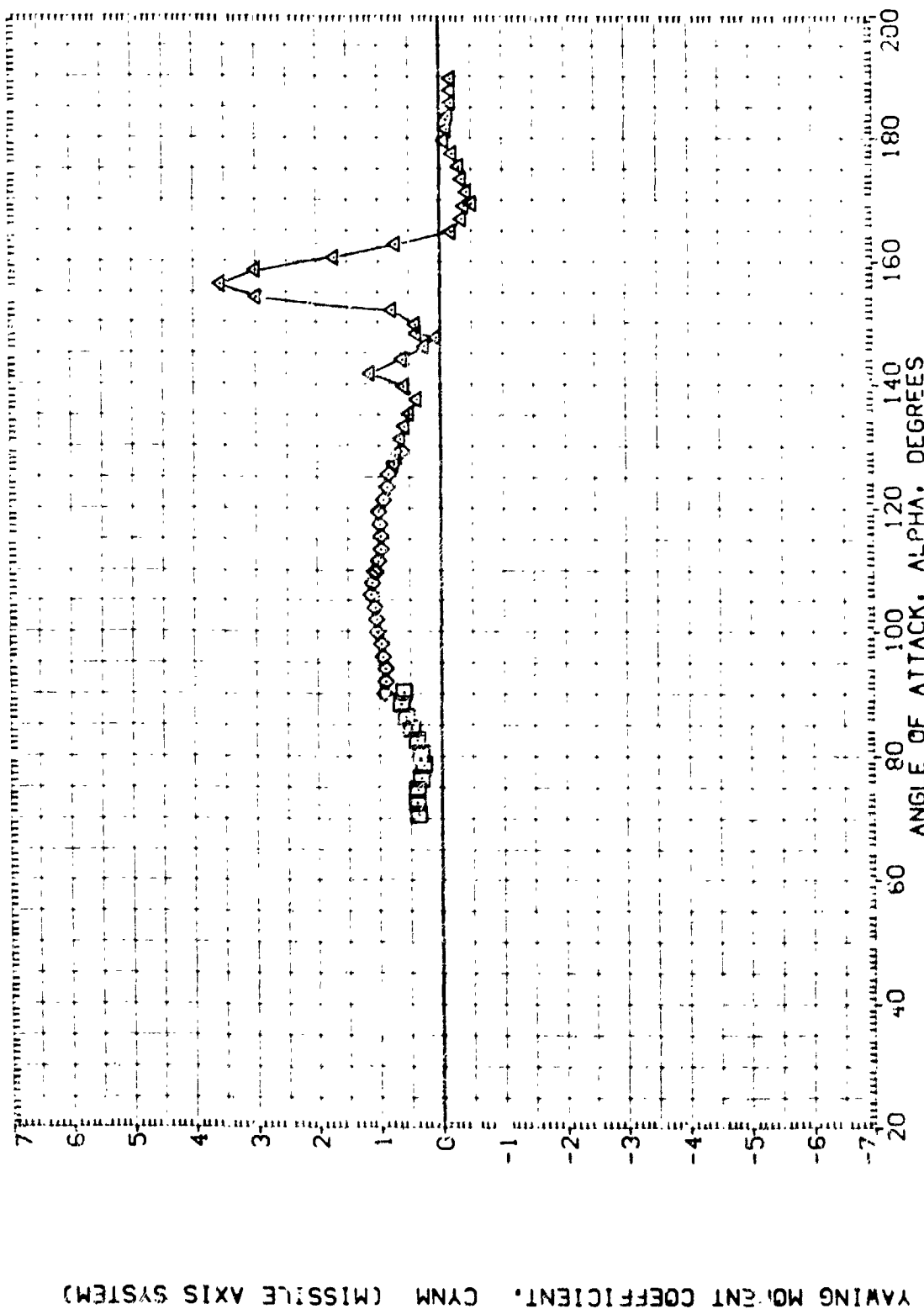


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(O)MACH = 1.20



DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H405)      DATA NOT AVAILABLE

(A1H400)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H405)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H405)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

90.000

90.000

90.000

90.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XTRP 5.7210 IN. XS

YTRP .0000 IN. YS

ZTRP .0000 IN. ZS

SCALE .0055

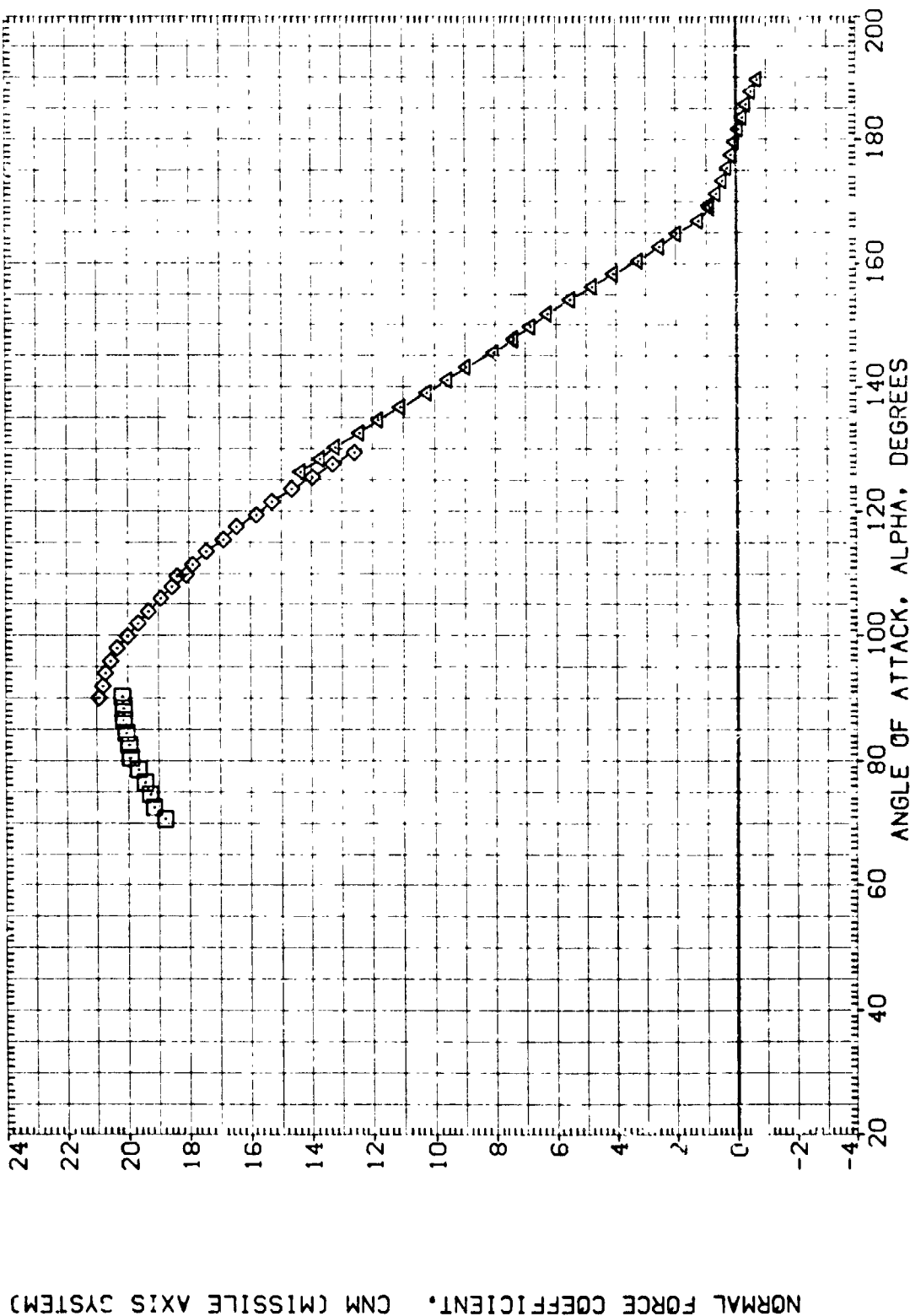


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(MACH = 1.96)

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1HACS)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	90.000		SREF	.5030 IN.
(A1H040)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		LREF	.8000 IN.
(A1H005)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		BREF	.8000 IN.
(A1H005)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	90.000		XMRP	5.7210 IN.
						YMRP	.0000 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

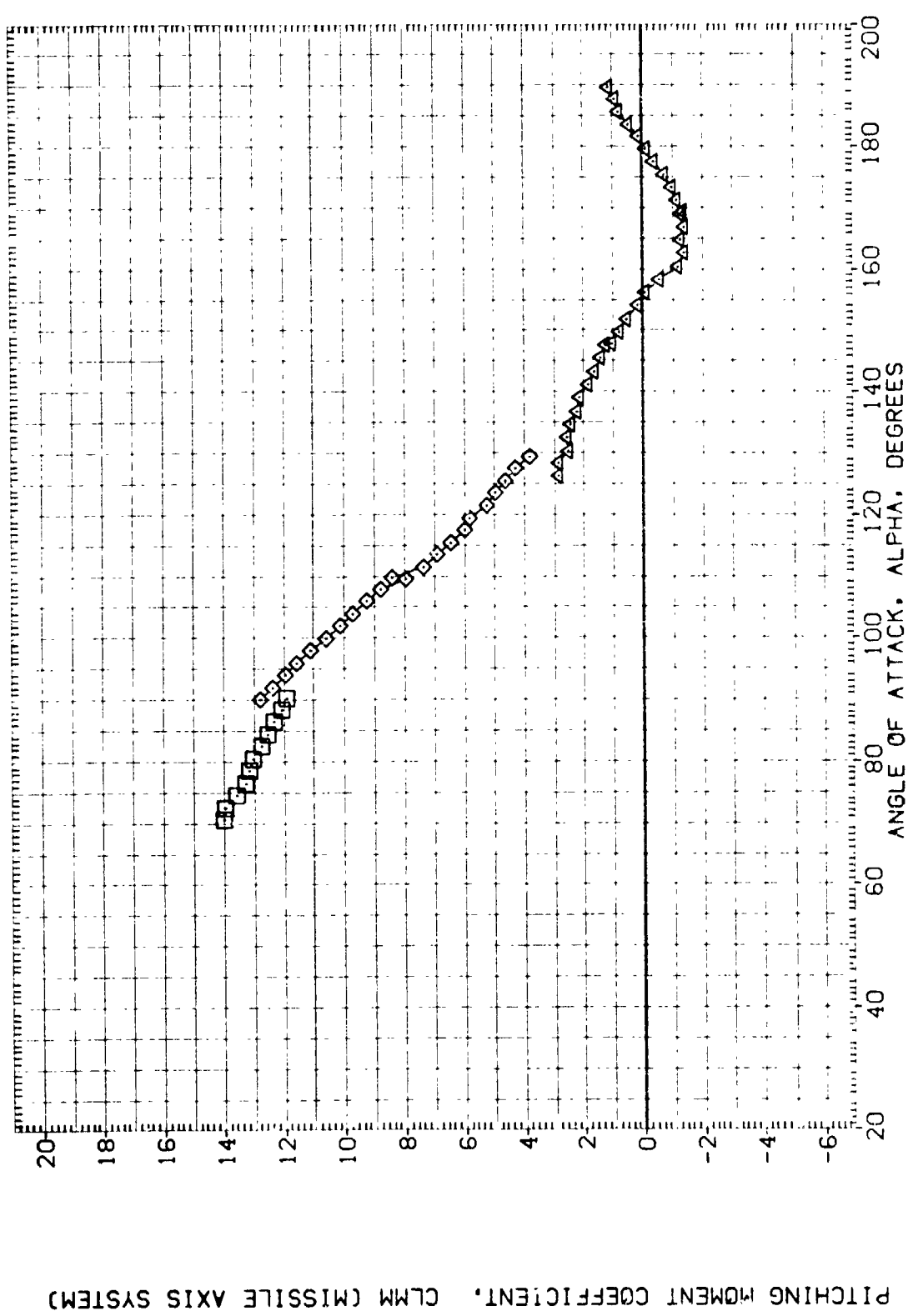


FIGURE 21. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 90)

(E)MACH = 1.96

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H405)      DATA NOT AVAILABLE      90.000

(A1H400)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1H405)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1H405)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

REFERENCE INFORMATION

SREF      50.30      SQ. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN.      XS

YMRP      .0000      IN.      YS

ZMRP      .0000      IN.      ZS

SCALE      .0055

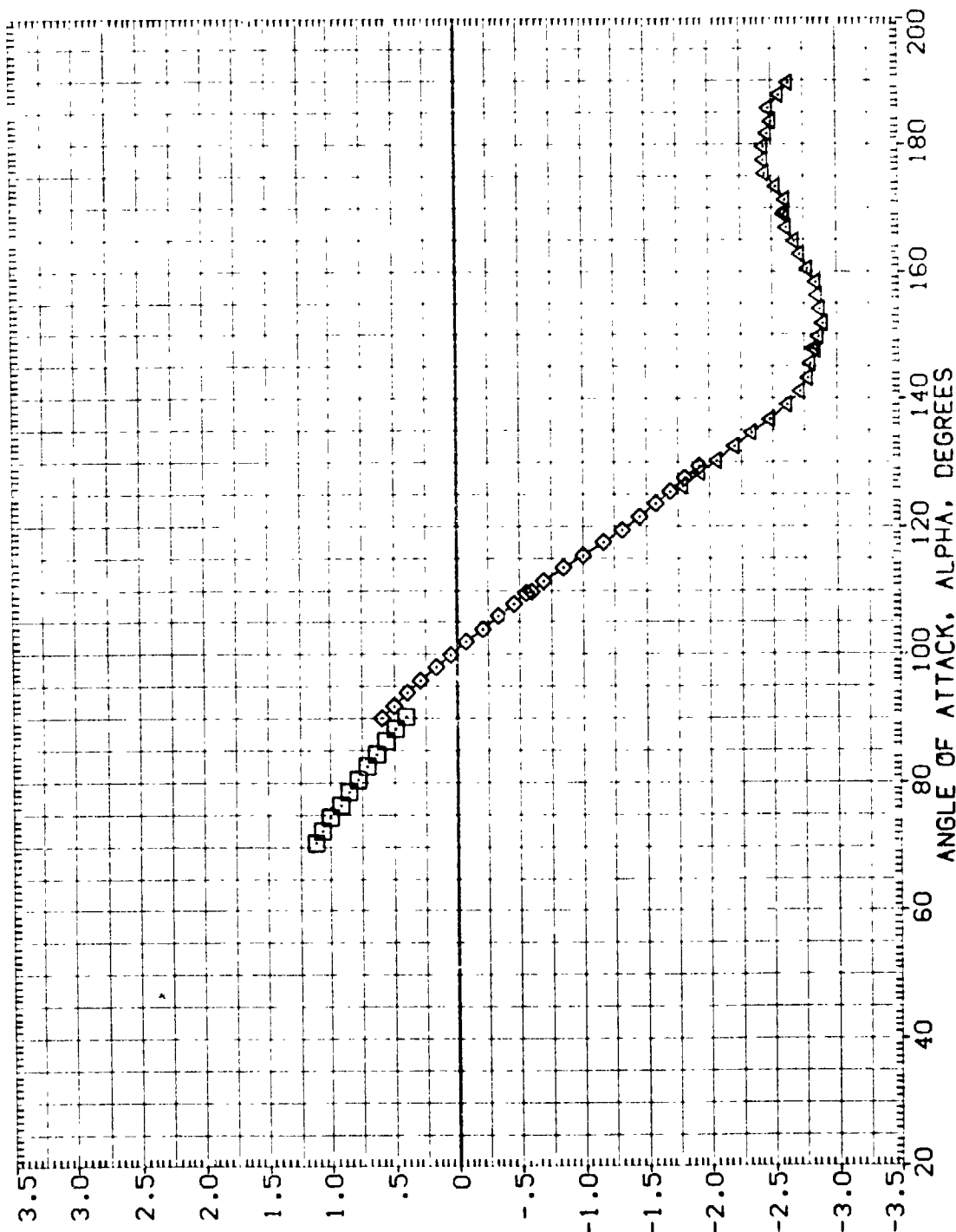


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	DATA NOT AVAILABLE	90.000	SREF .5030 IN.
(A1H404)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H405)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H405)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

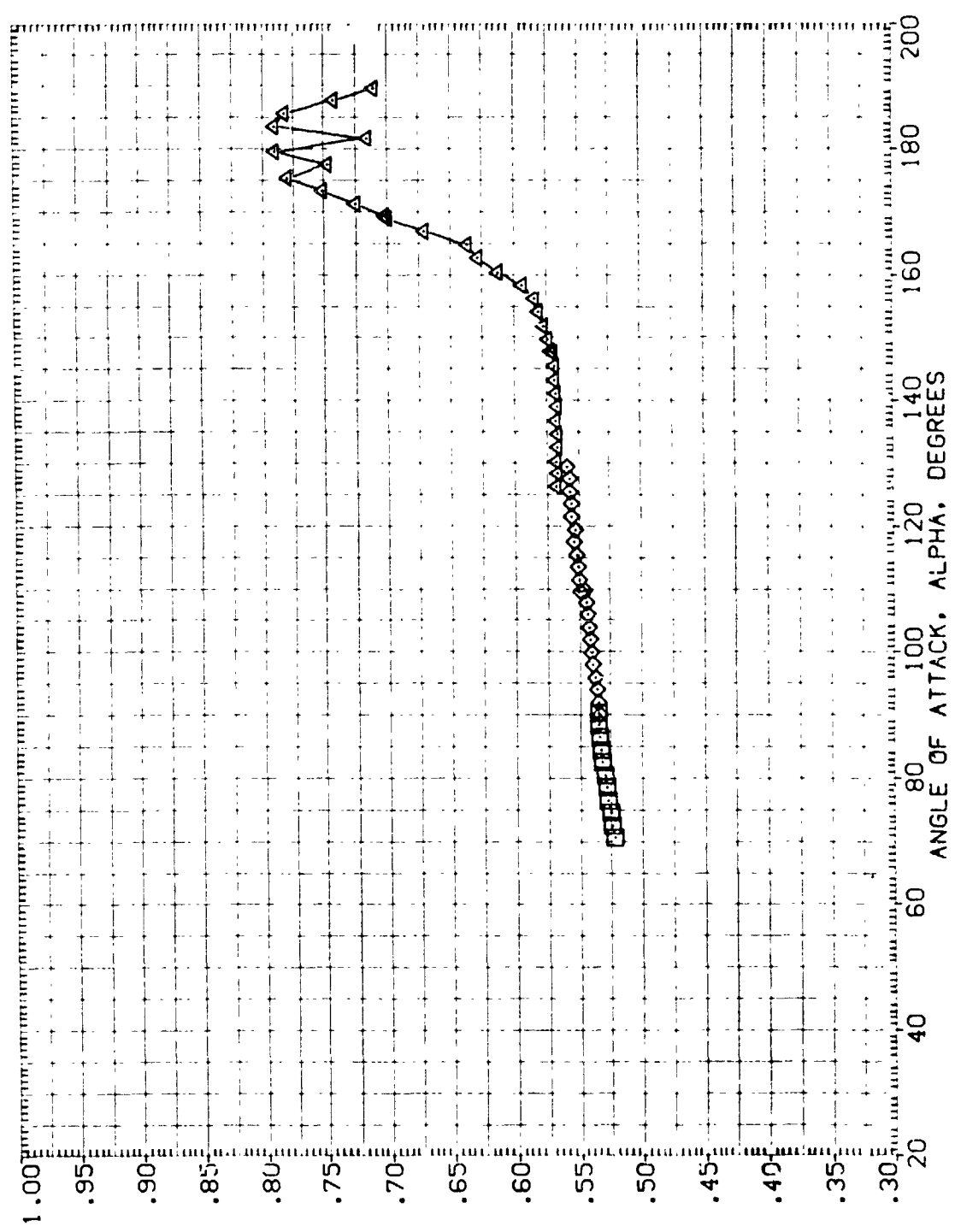


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

(E)MACH = 1.96



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	50.000	SREF 50.00 IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	50.000	LREF 8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	50.000	BREF 8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	50.000	YMRP 5.7210 IN.
			ZMRP 0.0000 IN.
			SCALE 0.0055 IN.

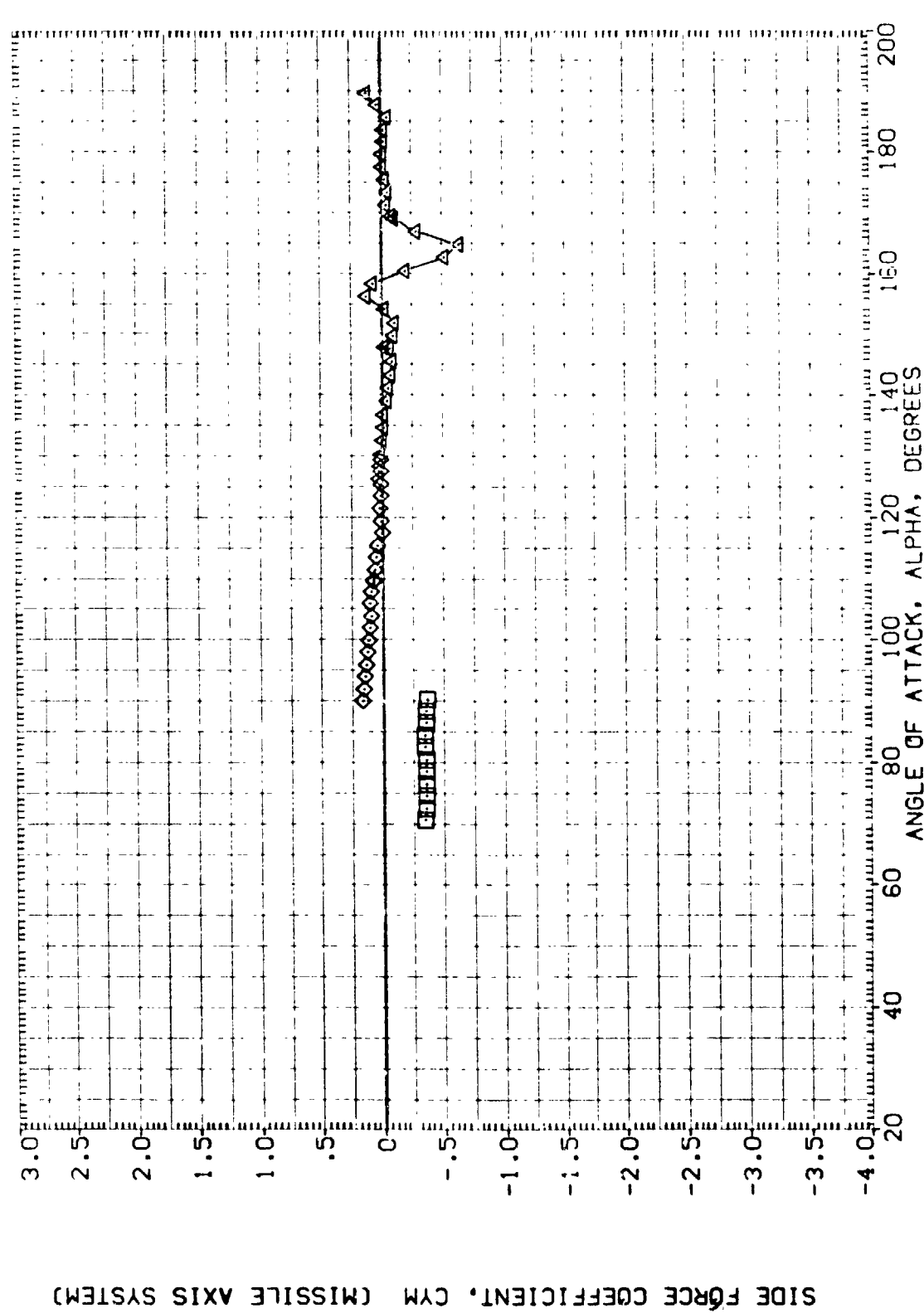


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\phi = 90^\circ$ )

(MACH = 1.96)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	90.000	SREF .5030 IN.
(A1H040)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

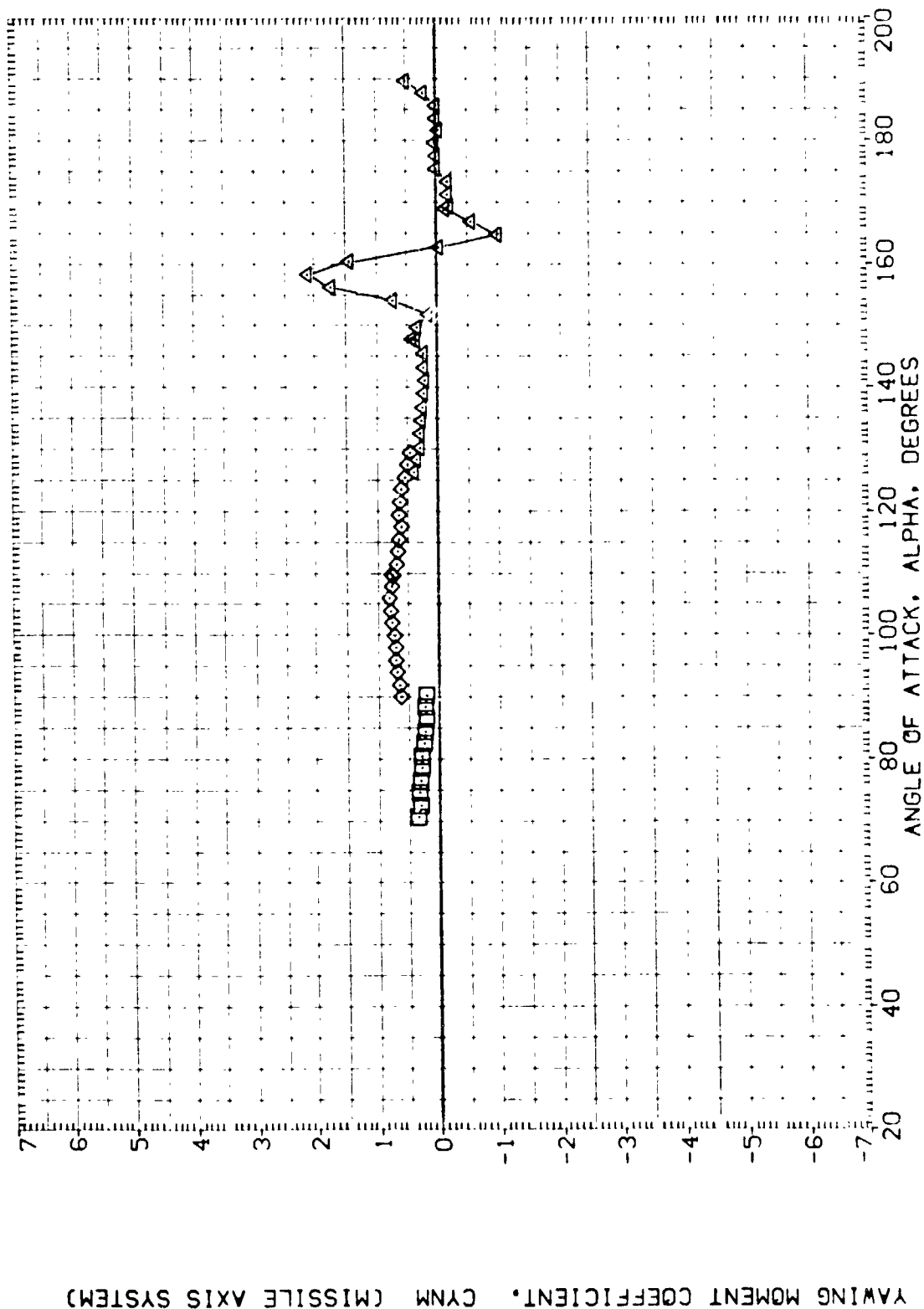


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	90.000	SAREF 10.000 IN.
(A1H040)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF 10.000 IN.
(A1H005)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF 10.000 IN.
(A1H005)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP 5.1210 IN. XS
			ZMRP 10.000 IN. YS
			SCALE 10.000 IN. ZS

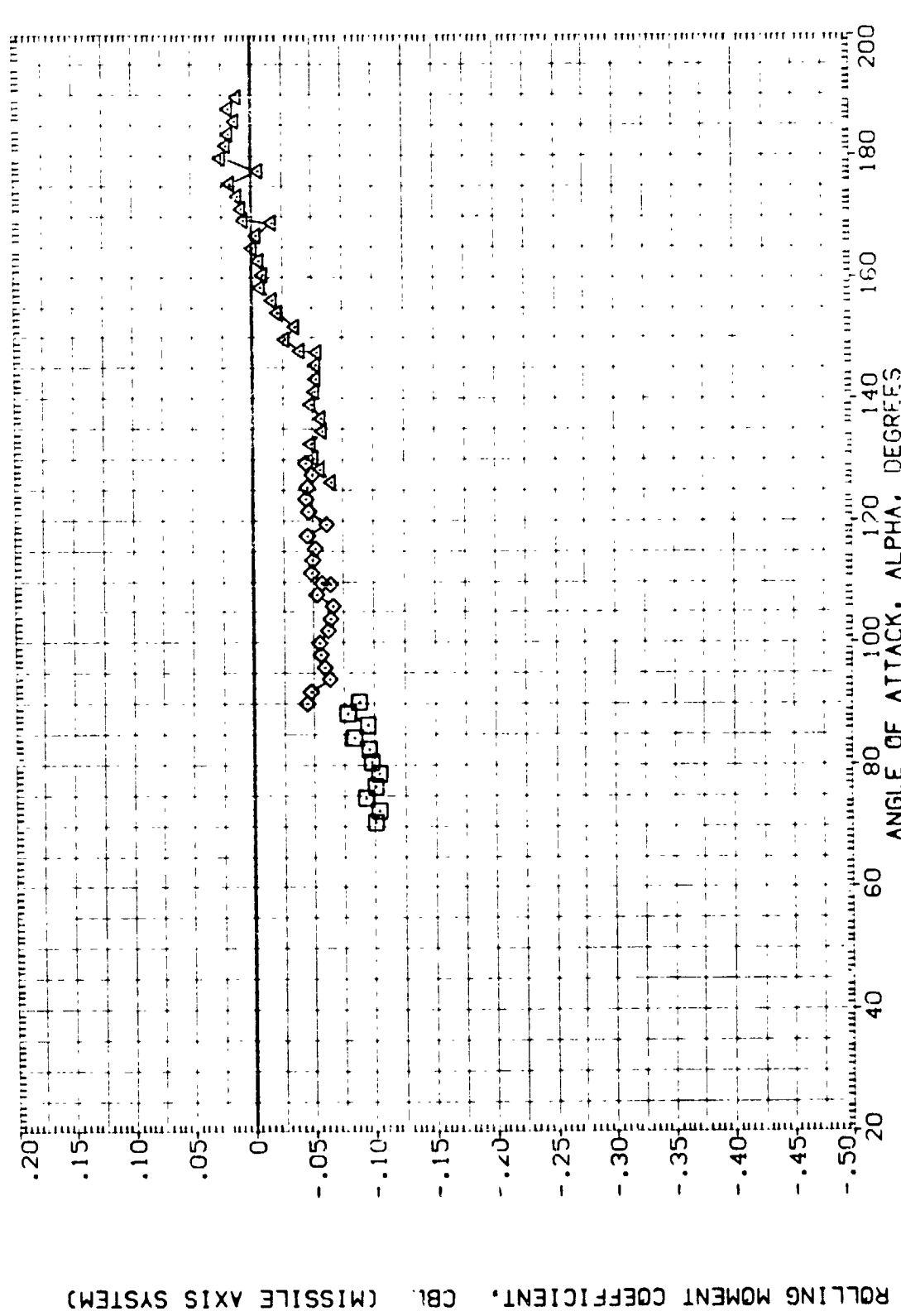


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90°)

(E)MACH = 1.96

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REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7213	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

90.000
90.000
90.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H005)	DATA NOT AVAILABLE
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

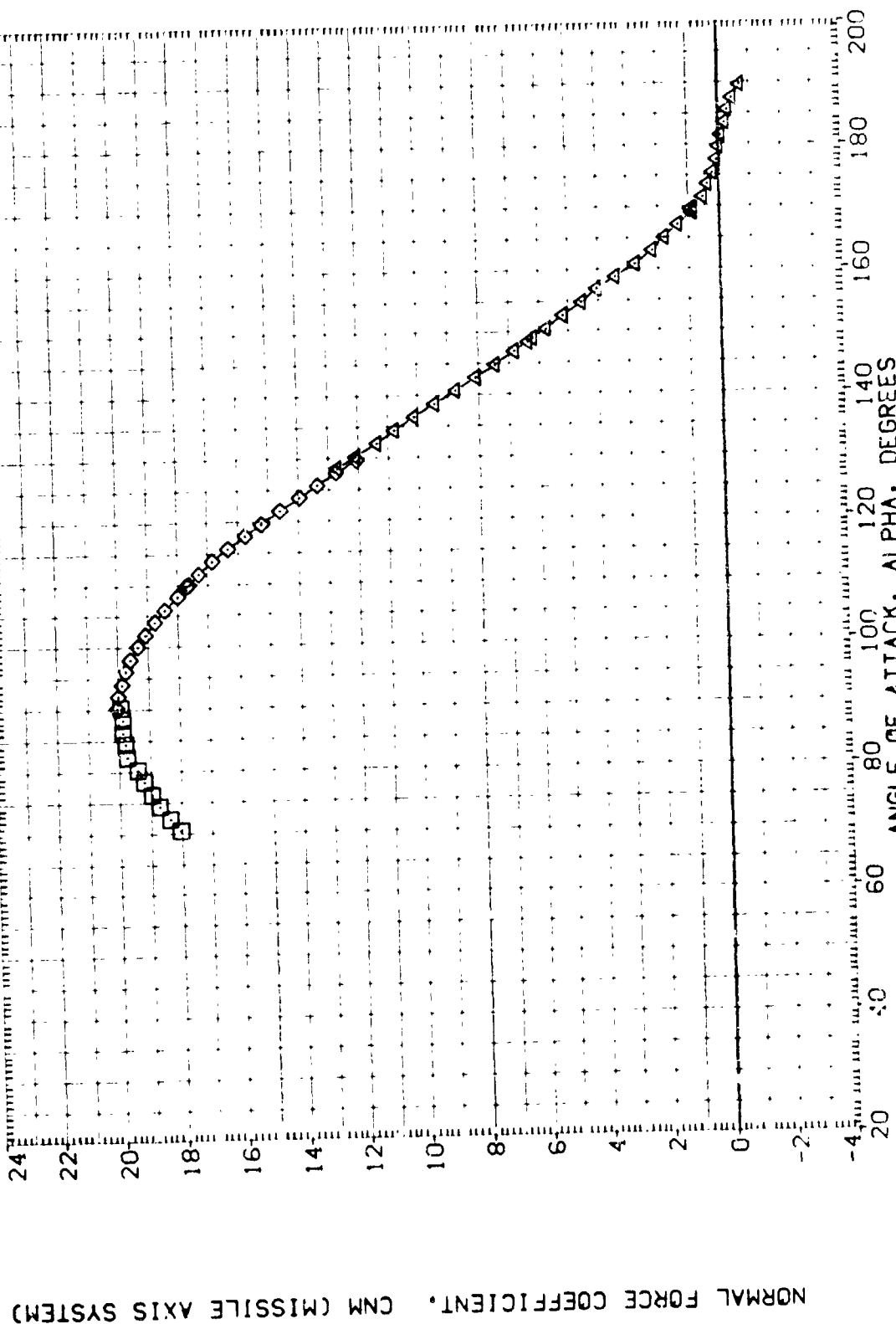


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(F)MACH = 2.74



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	DATA NOT AVAILABLE	90.000	SREF .5030 IN.
(A1H410)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

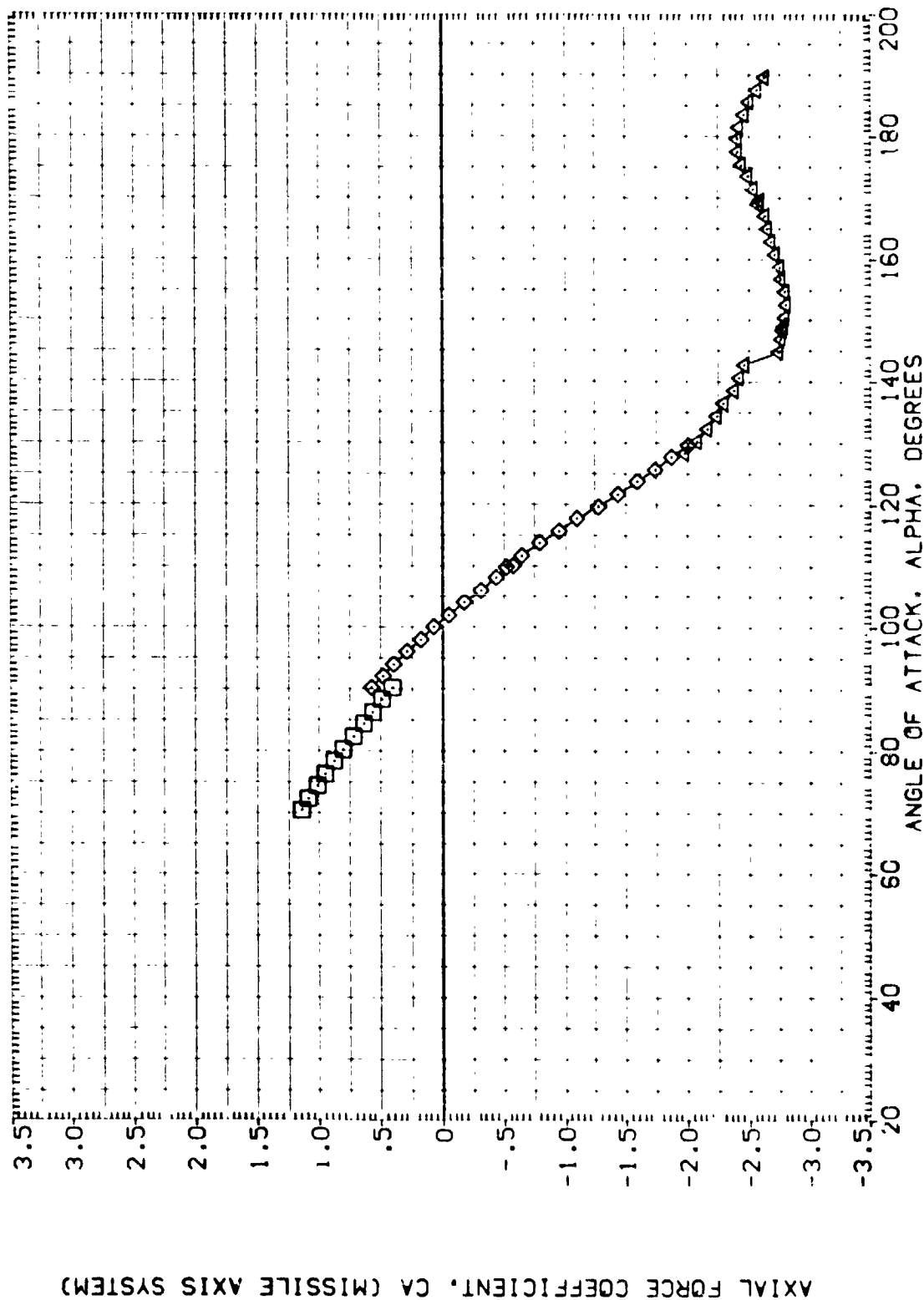


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(F)MACH = 2.74

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)      DATA NOT AVAILABLE      90.000

(A1H040)      MSFC TVT604 (SAB) SRB WITH ALL PROTRUDANCES      90.000

(A1H007)      MSFC TVT604 (SAB) SRB WITH ALL PROTRUDANCES      90.000

(A1H005)      MSFC TVT604 (SAB) SRB WITH ALL PROTRUDANCES      90.000

REFERENCE INFORMATION

SREF      503C      50. IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5.721C      IN. XS

YMRP      .000C      IN. YS

ZMRP      .000C      IN. ZS

SCALE      .0055

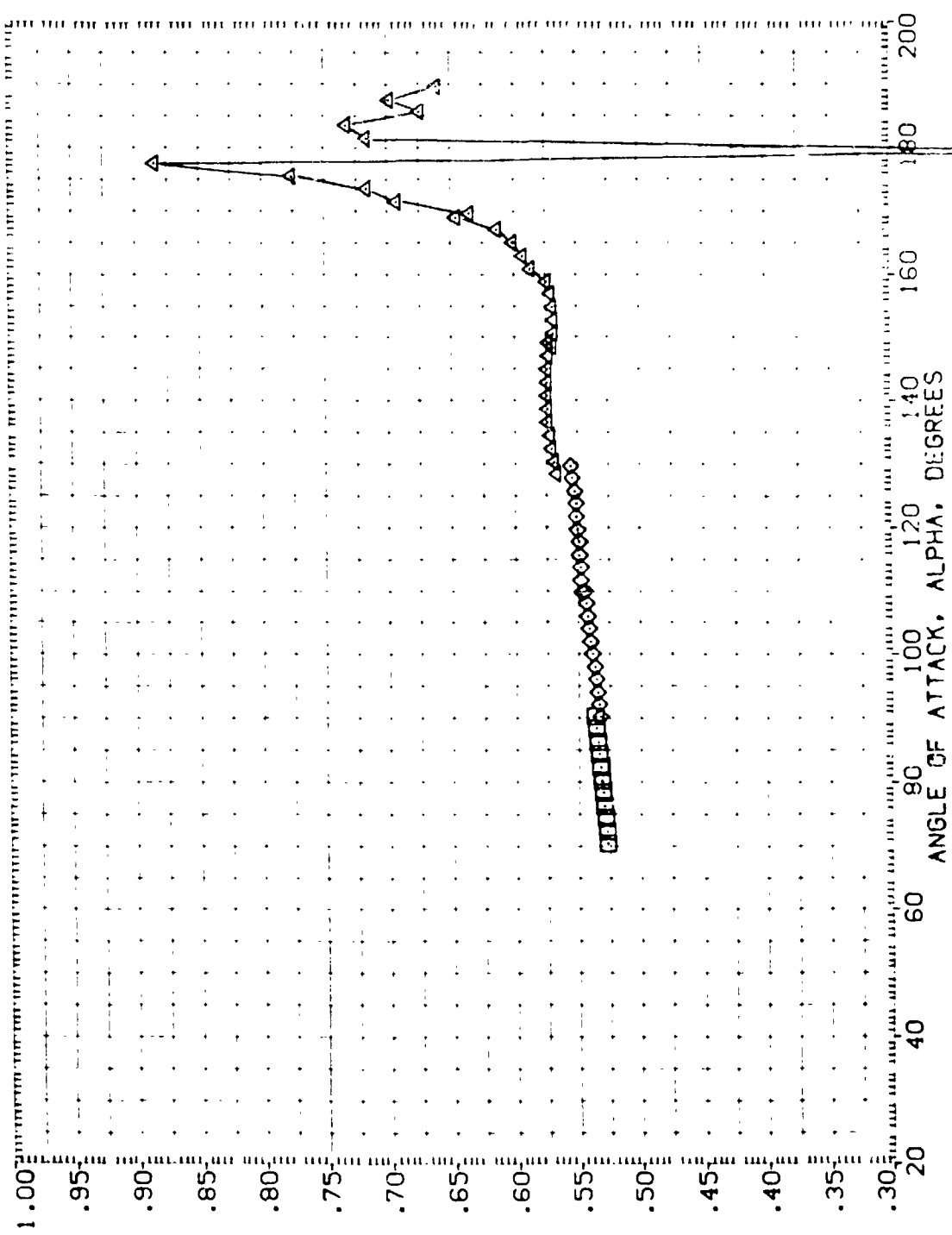


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTRUDANCES (PHI = 90)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H025)	DATA NOT AVAILABLE	90.000	SREF .5030 50. IN.
(A1H040)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF 5.7210 IN. XS
(A1H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

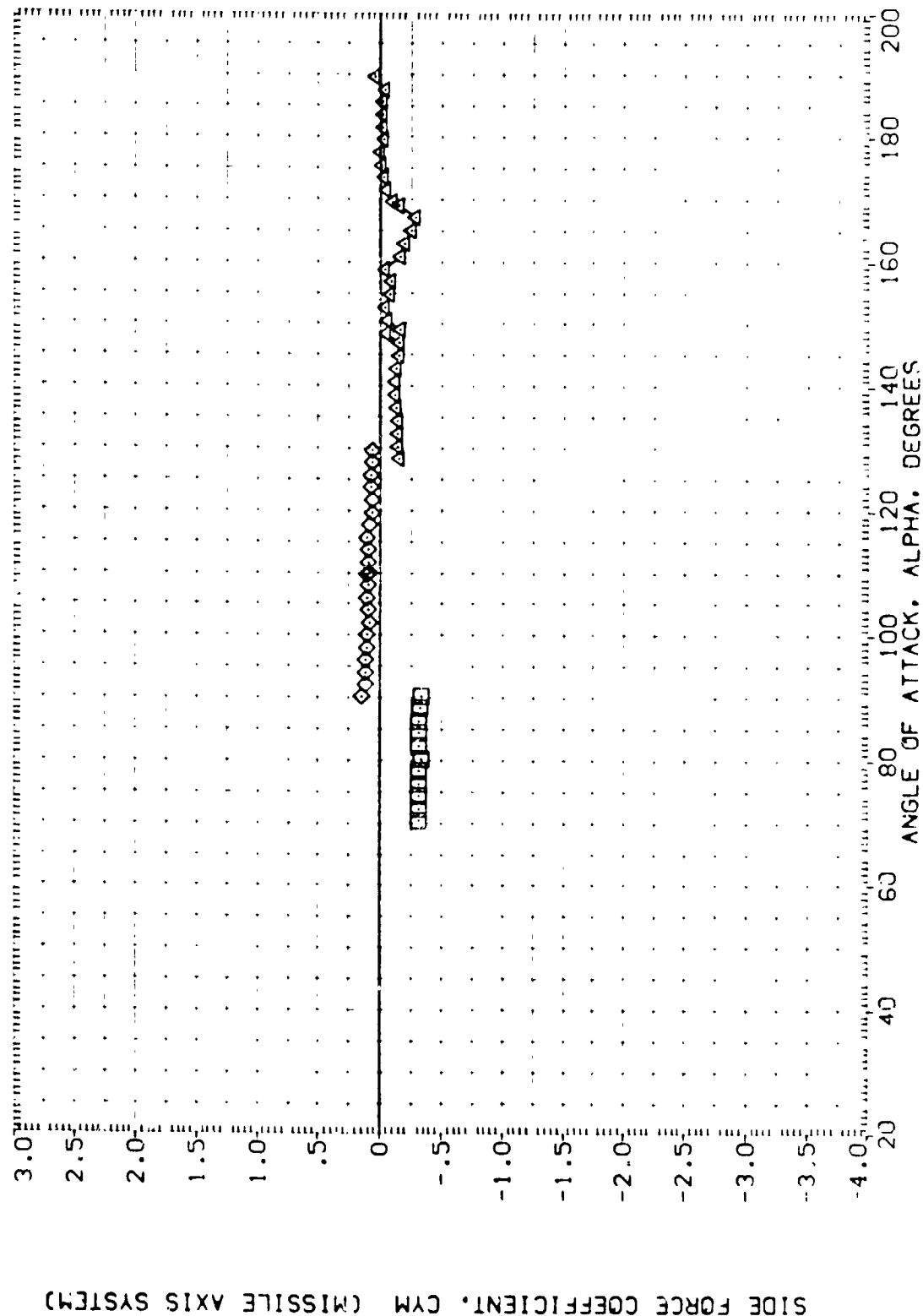


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(F)MACH = 2.74



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	90.000	SREF .50 IN.
(A1H040)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000
(A1H005)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	WREF .50 IN.
(A1H005)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XREF 5.7210
			YREF .0000
			ZREF .0000
			SCALE .0055

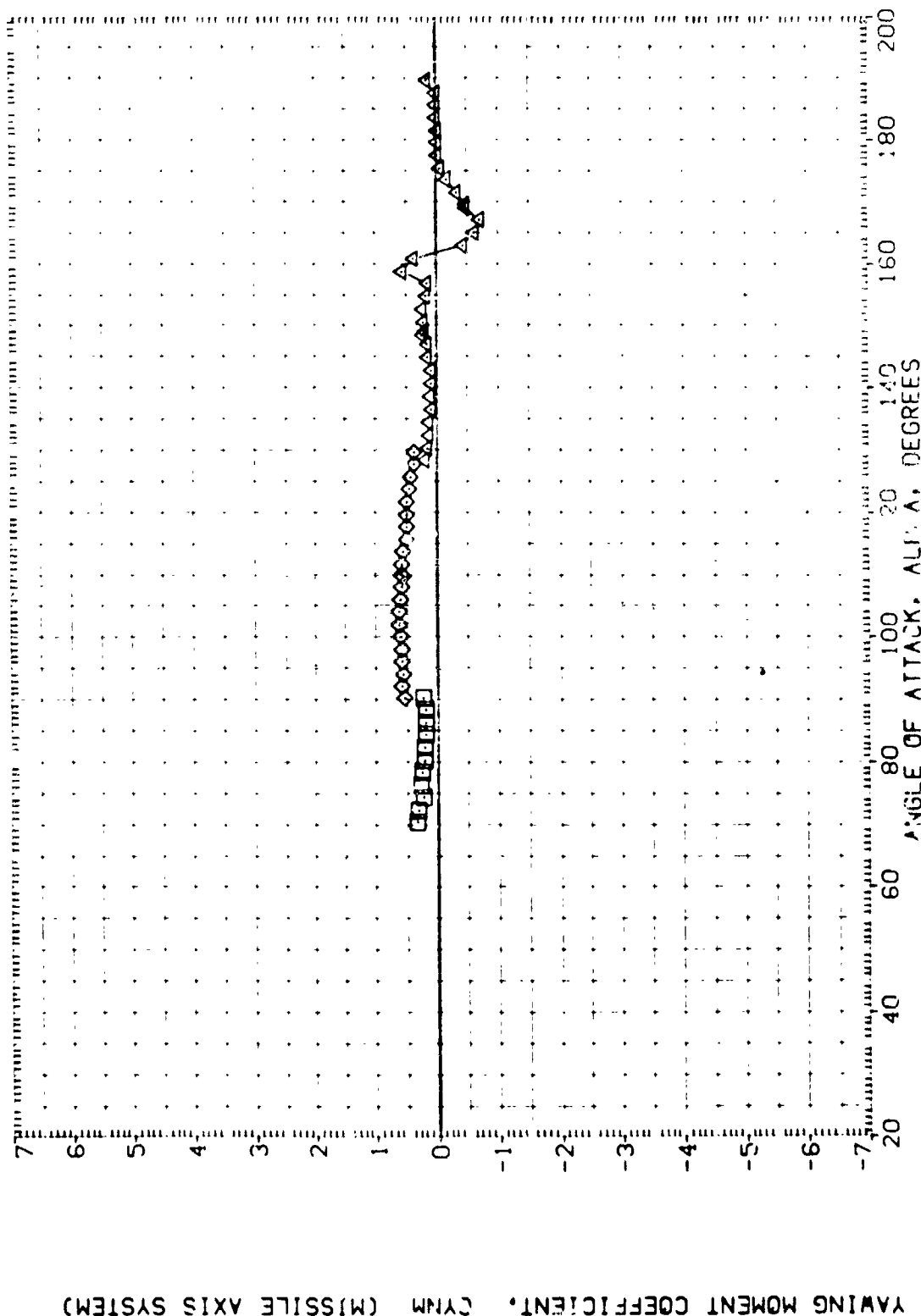


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(F)MACH = 2.74

DATA SET SYMBOL: (A1H005) (A1H040) (A1H005) (A1H005)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI: 90.000 90.000 90.000 90.000

REFERENCE INFORMATION: SREF .5030 SQ. IN. LREF .8000 IN. BREF .8000 IN. XMRP 5.7210 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .005

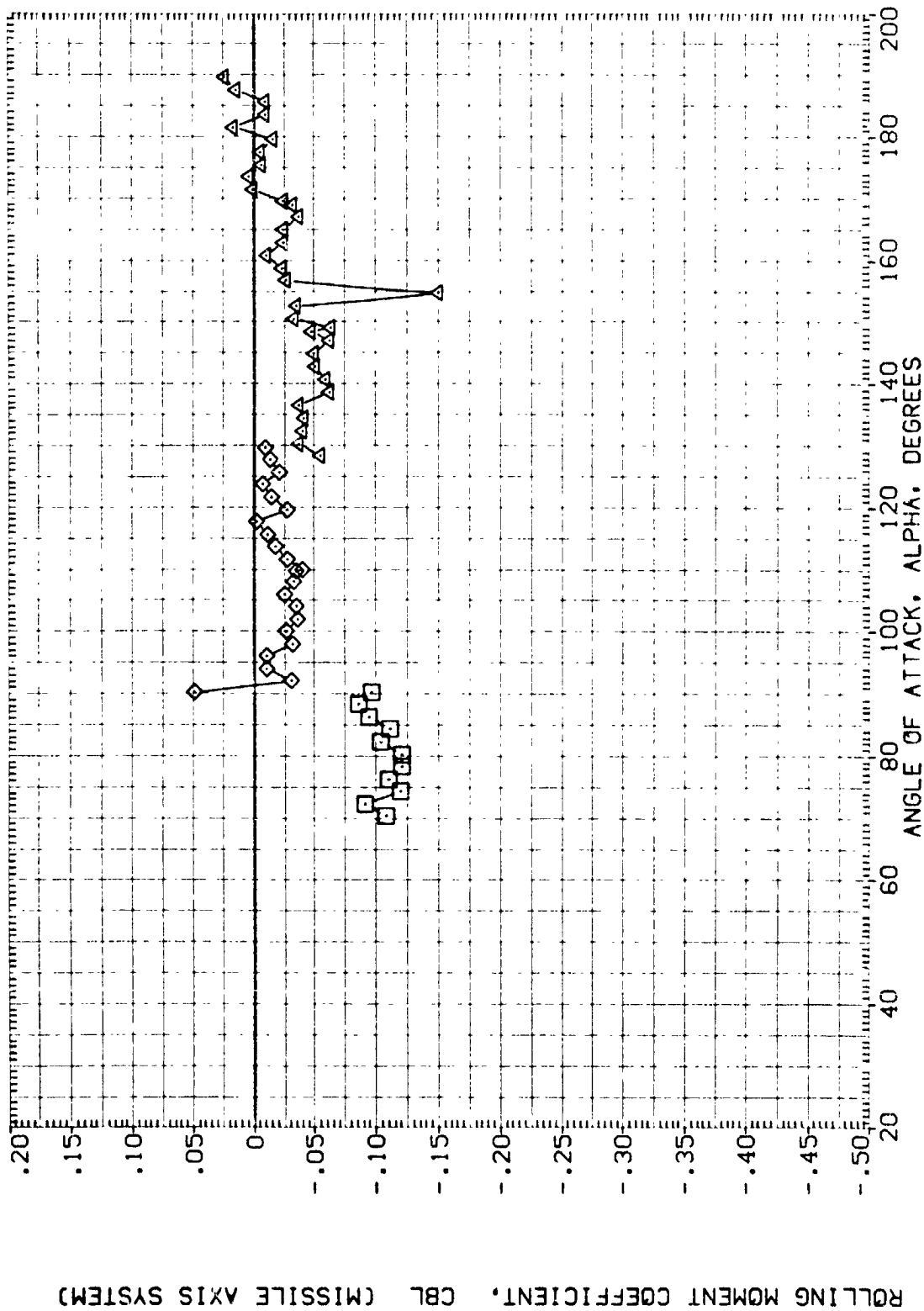


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(F)MACH = 2.74

DATA SET SYMBOL  
 (AIH005)  
 (AIH000)  
 (AIH040)  
 (AIH005)

CONFIGURATION DESCRIPTION  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 90.000  
 90.000  
 90.000  
 90.000

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 YMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

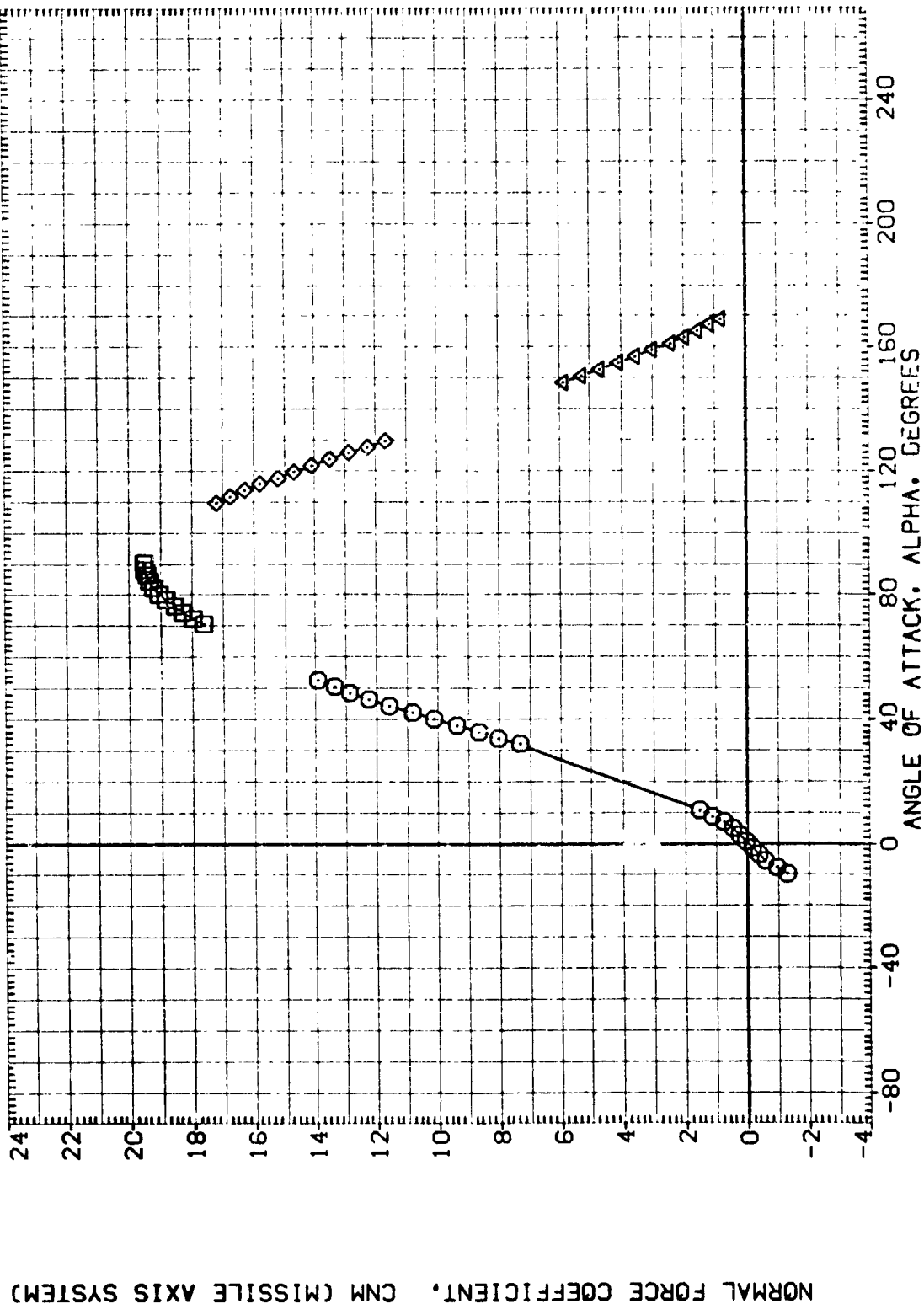


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(A)MACH = 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

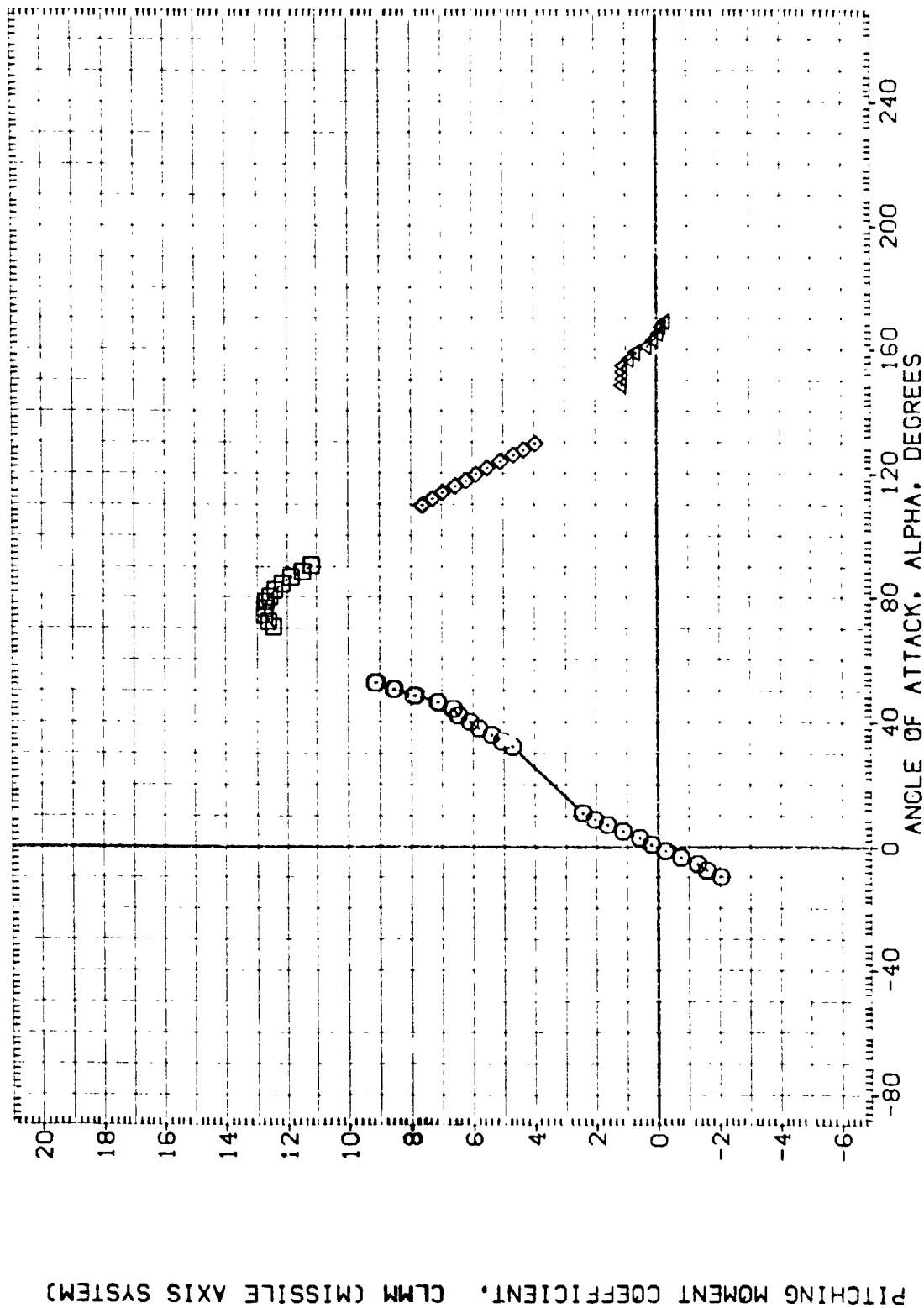


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 90)

MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(A1H404)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H405)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H405)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

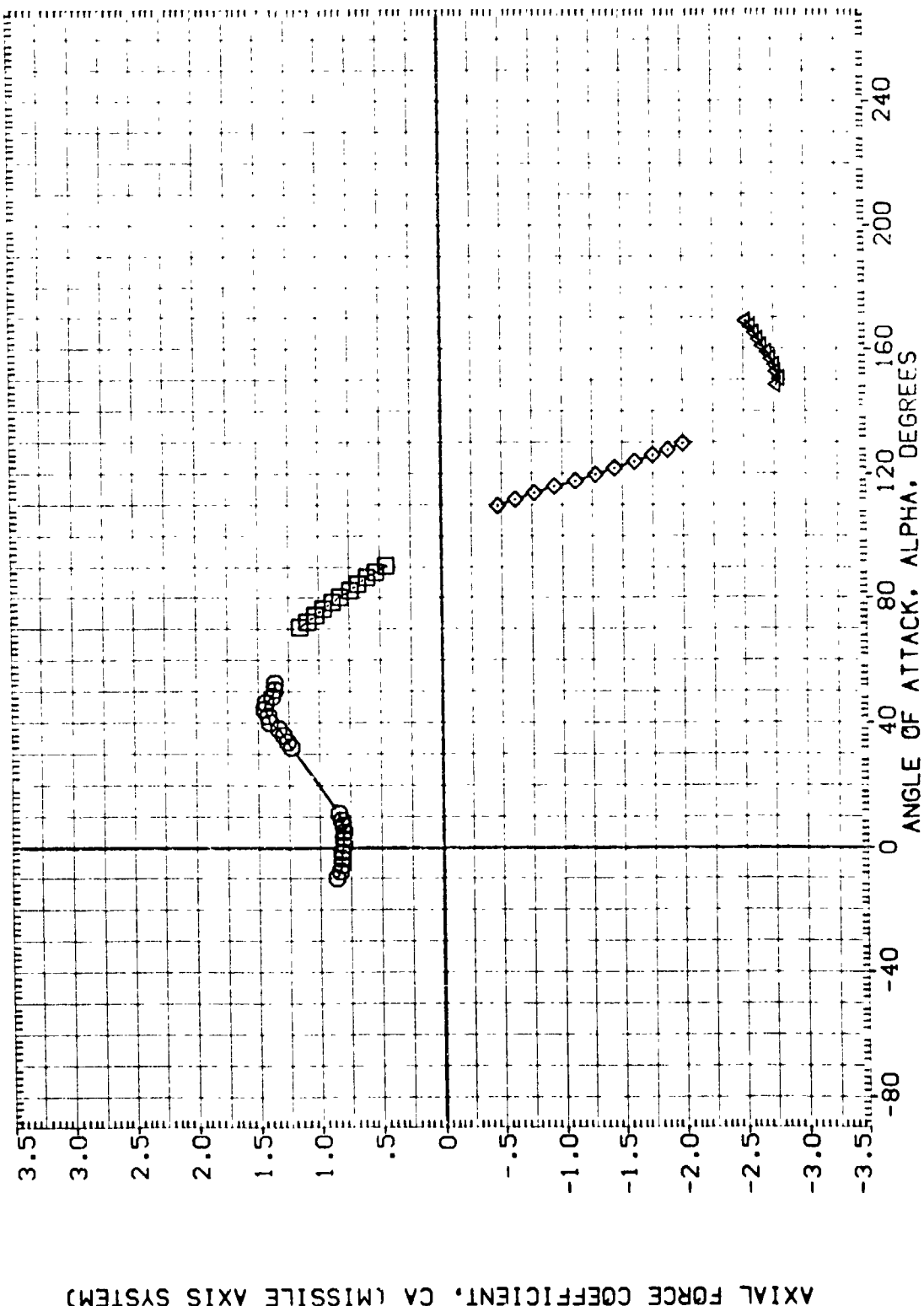


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\Phi = 90^\circ$ )

(A)MACH = 3.48

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(A1H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

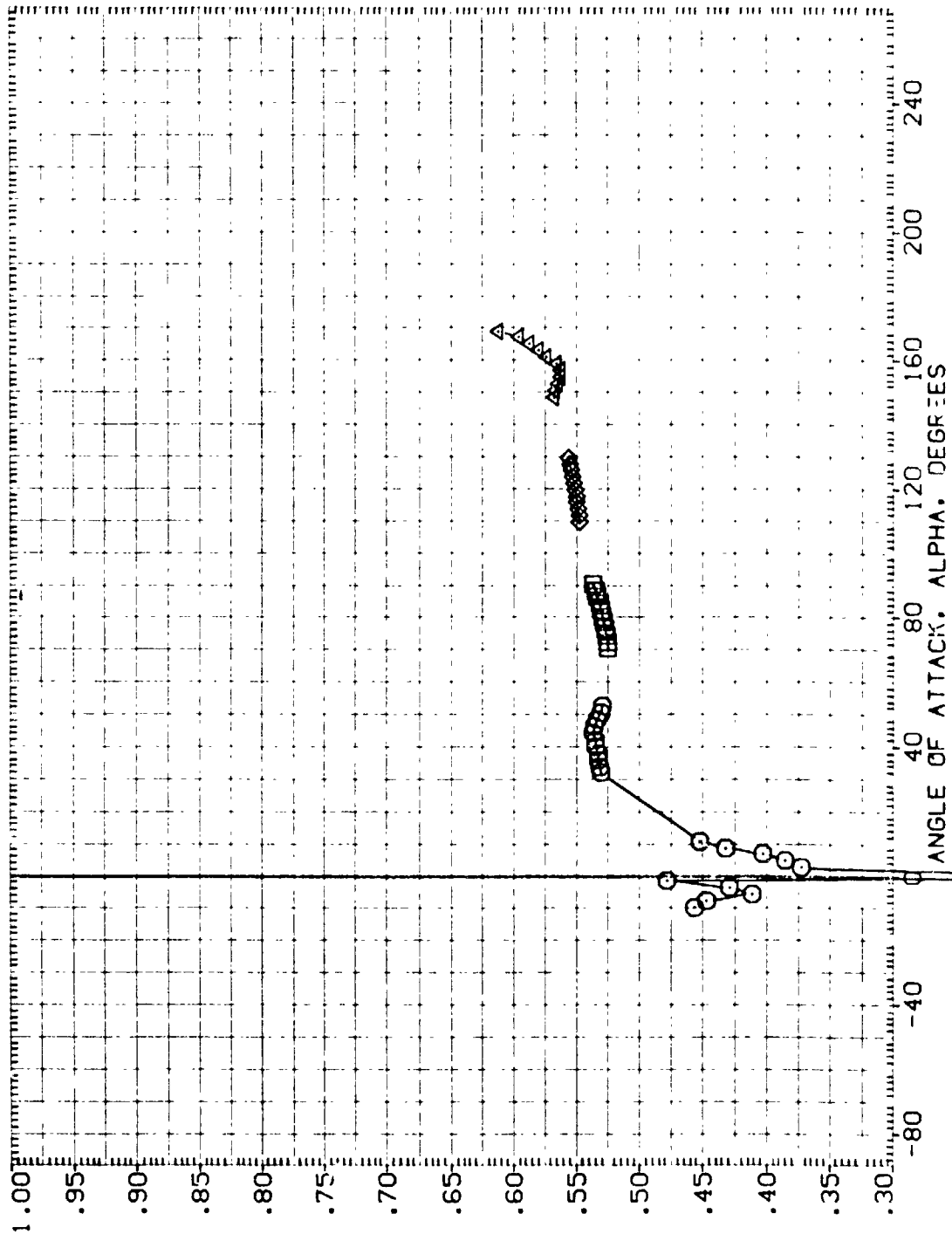


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WALL PROTUBERANCES (PHI = 90)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A11H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(A11H040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A11H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A11H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XTRP 5.7210 IN. YS
			YTRP .0000 IN. YS
			ZTRP .0000 IN. ZS
			SCALE .0005

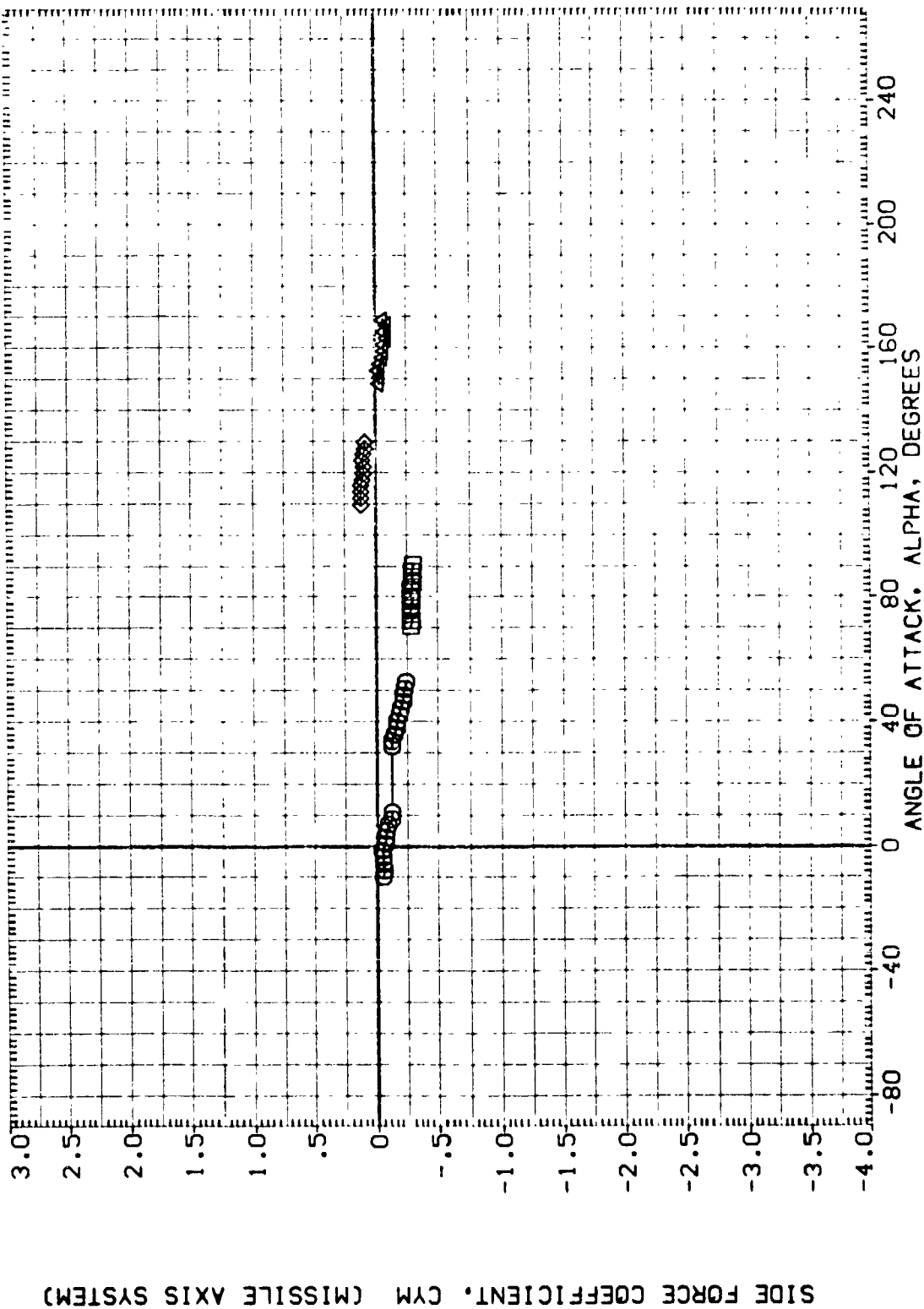


FIGURE 21. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\Phi = 90$ )

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H404)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

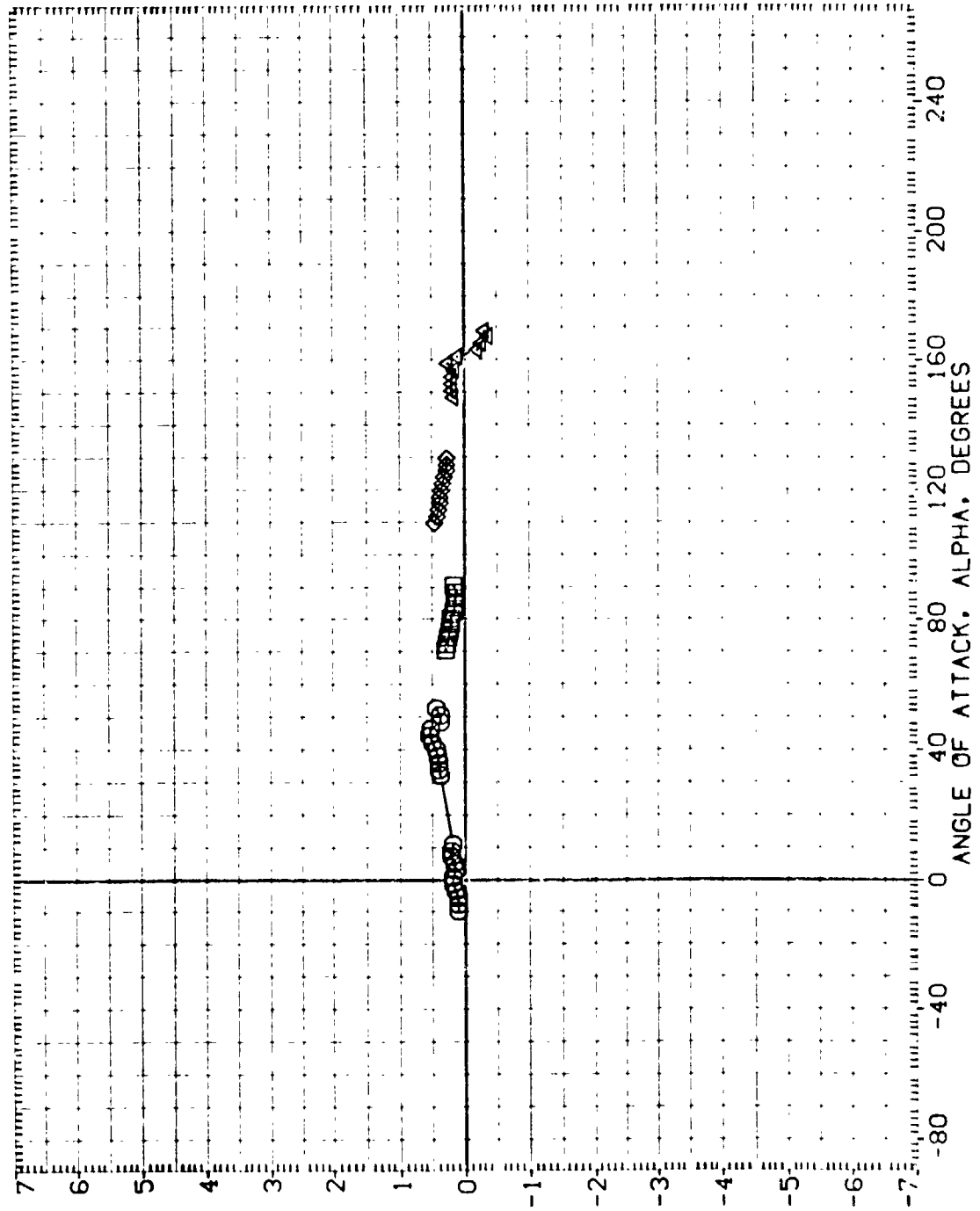


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 90)

(A) MACH = 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(AIH040)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	BREF .8000 IN.
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

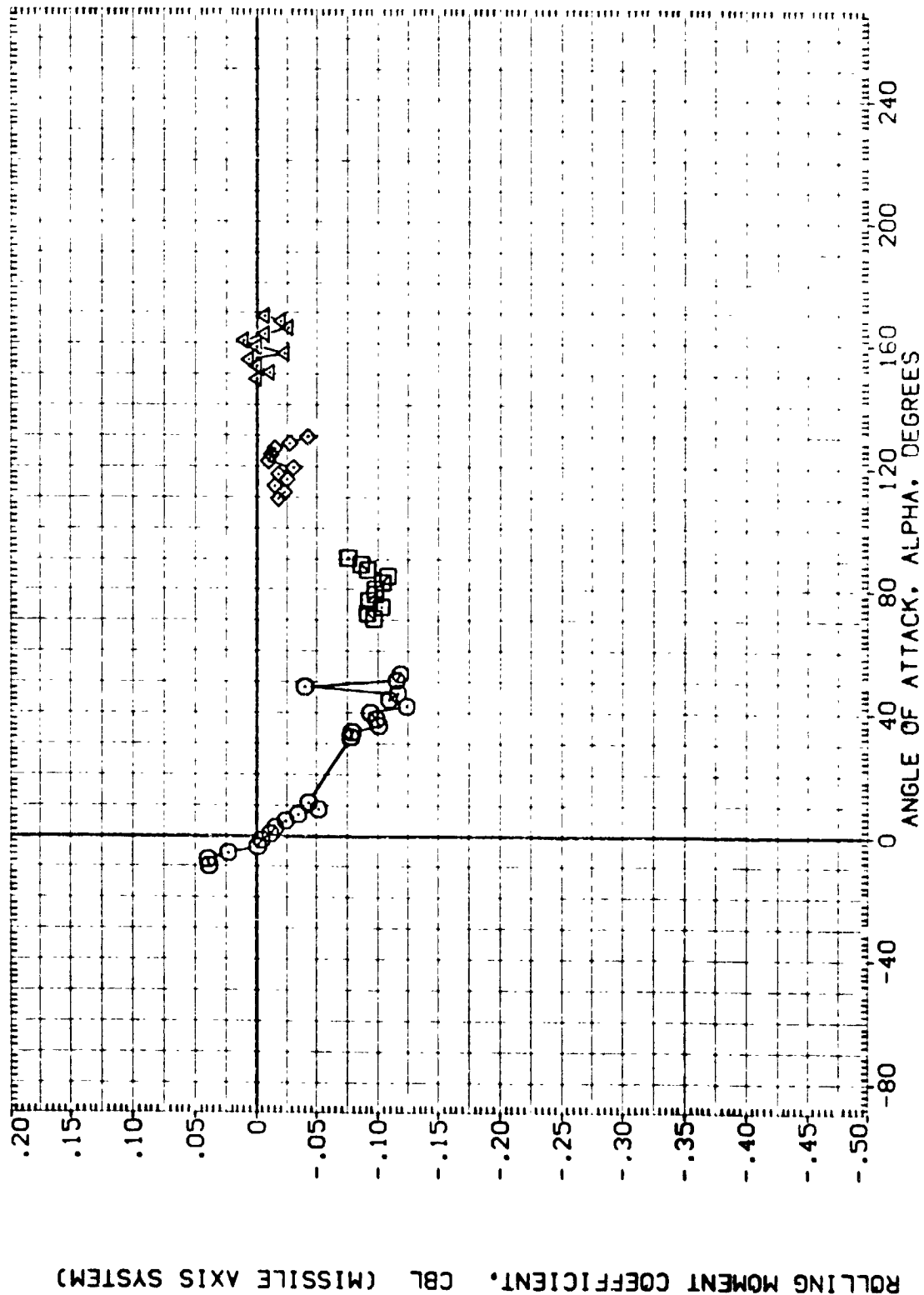


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

==

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(A1H040)	DATA NOT AVAILABLE	90.000	LREF .8000 IN.
(A1H005)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

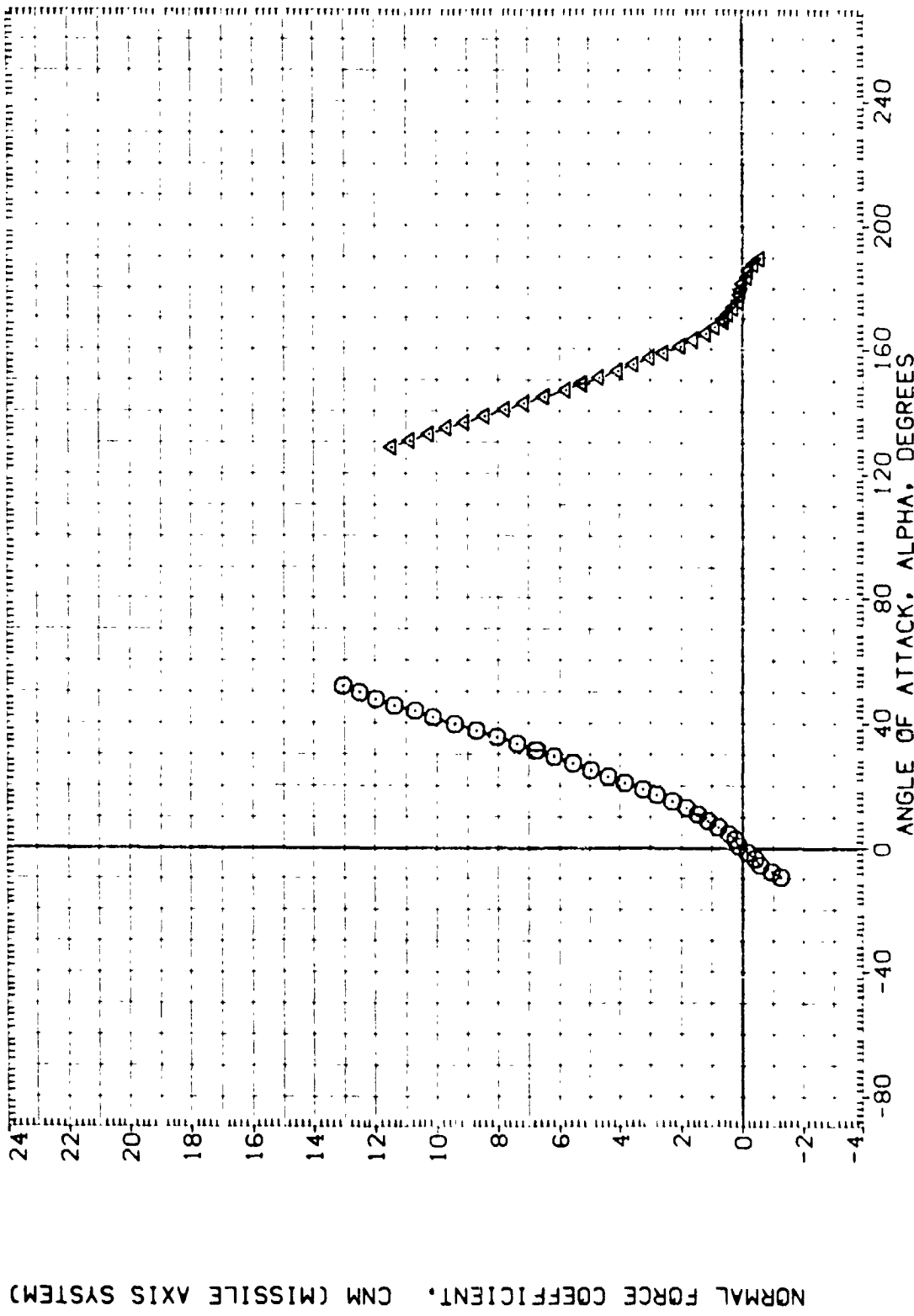


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(B)MACH = 4.45

PITCHING MOMENT COEFFICIENT, CLPM (MISSILE AXIS SYSTEM)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1H040)      DATA NOT AVAILABLE      90.000

(A1H005)      DATA NOT AVAILABLE      90.000

(A1H005)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

REFERENCE INFORMATION

SREF      .5030      IN.

LREF      .8000      IN.

GRF      .8000      IN.

YMRP      5.7210      IN.

ZMRP      .0000      IN.

SCALE      .0055      IN.

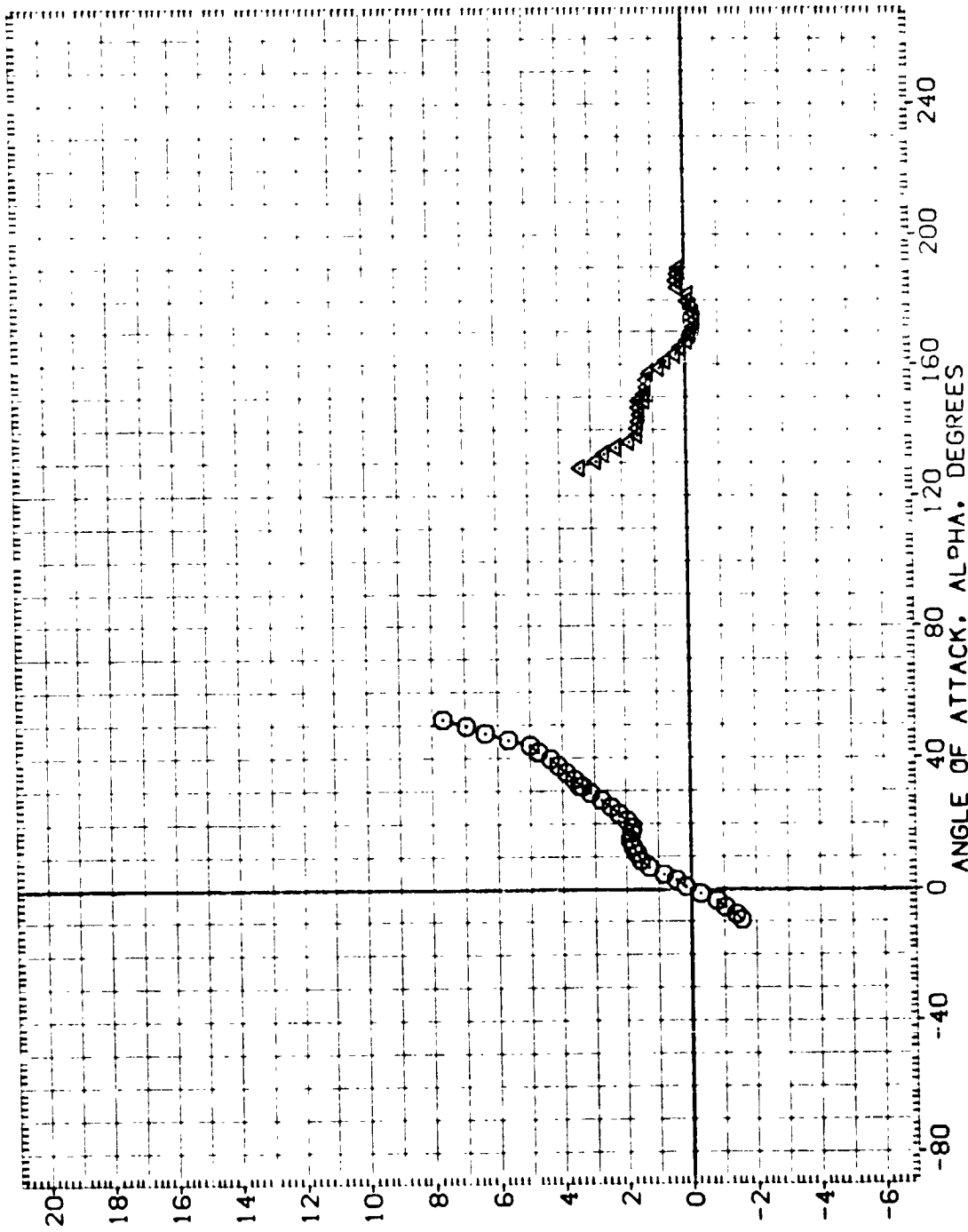


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(B) MACH = 4.45

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H040)	DATA NOT AVAILABLE	90.000	LREF .8000 IN.
(A1H005)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

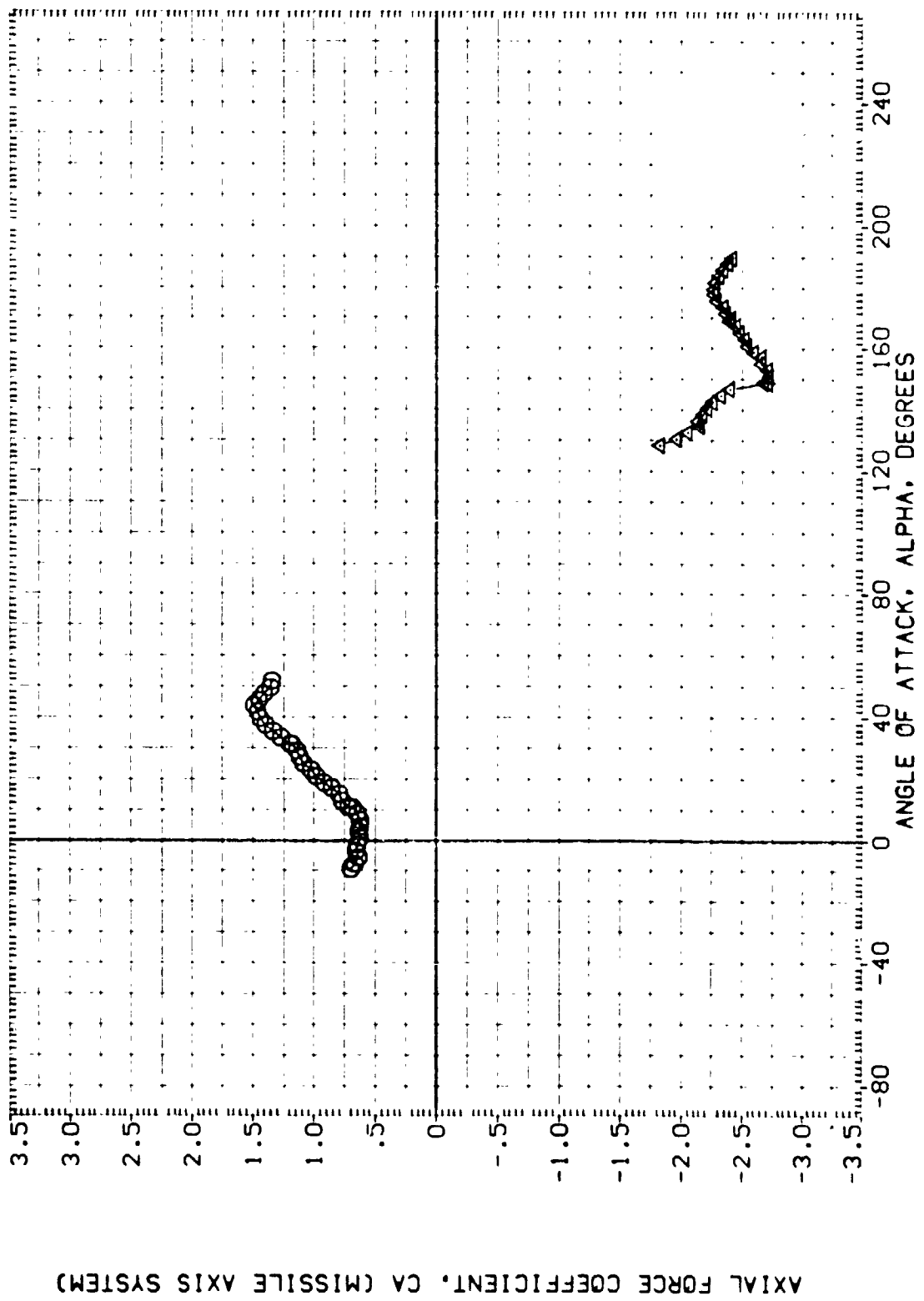


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(B) MACH = 4.45



REFERENCE INFORMATION  
SREF .5030 SQ. IN.  
LREF .8000 IN.  
BREF .8000 IN.  
XMRP 5.7210 IN. XS  
YMRP .0000 IN. YS  
ZMRP .0000 IN. ZS  
SCALE .0055

PHI  
90.000  
90.000  
90.000

CONFIGURATION DESCRIPTION  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
DATA NOT AVAILABLE  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL  
(AIH005)  
(AIH040)  
(AIH005)  
(AIH005)

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

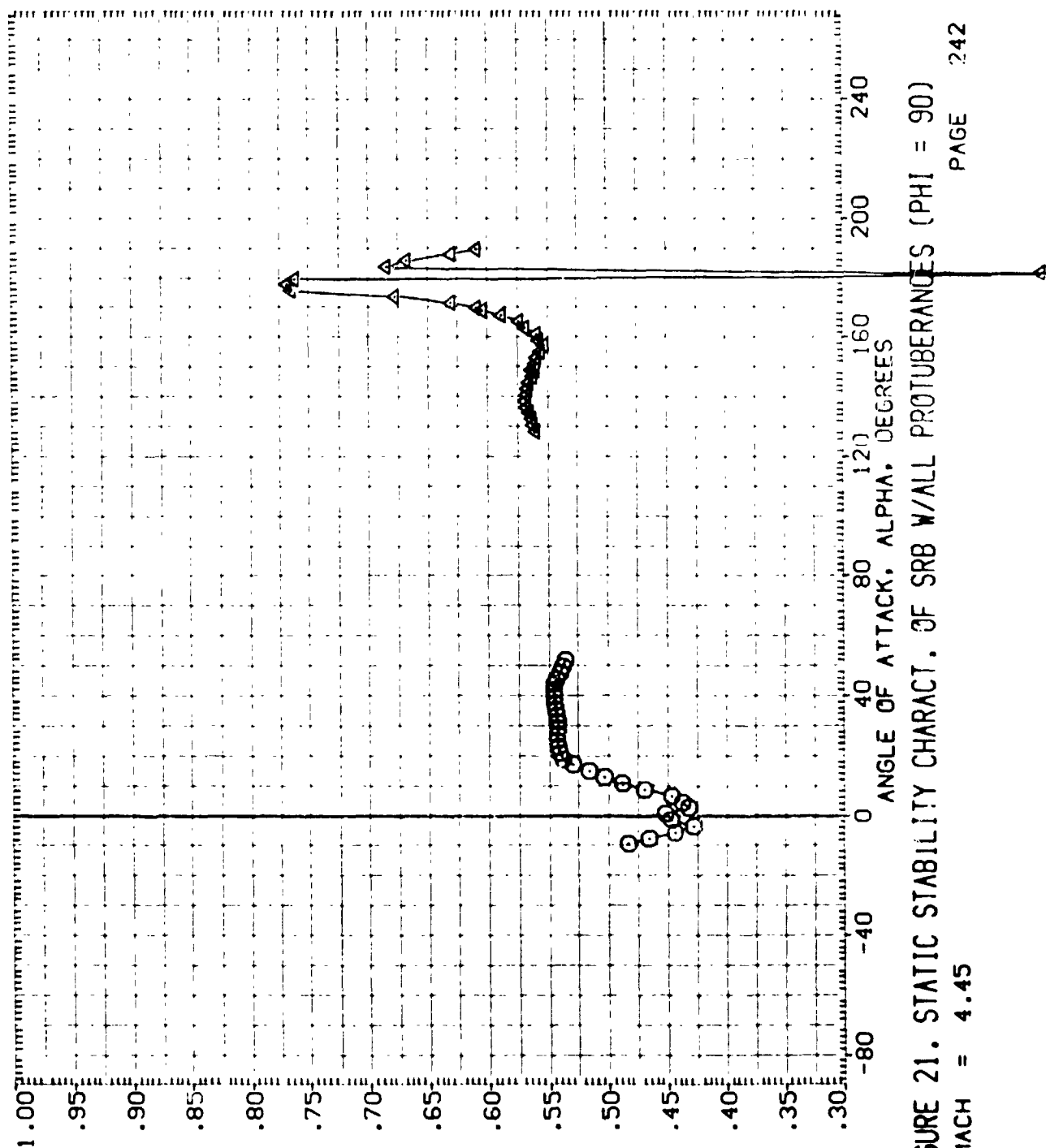


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 90)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 IN.
(A1H404)	DATA NOT AVAILABLE	90.000	LREF .8000 IN.
(A1H405)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMPP 5.7210 IN. XS
			VMPP .0000 IN. YS
			ZMPP .0000 IN. ZS
			SCALE .0055

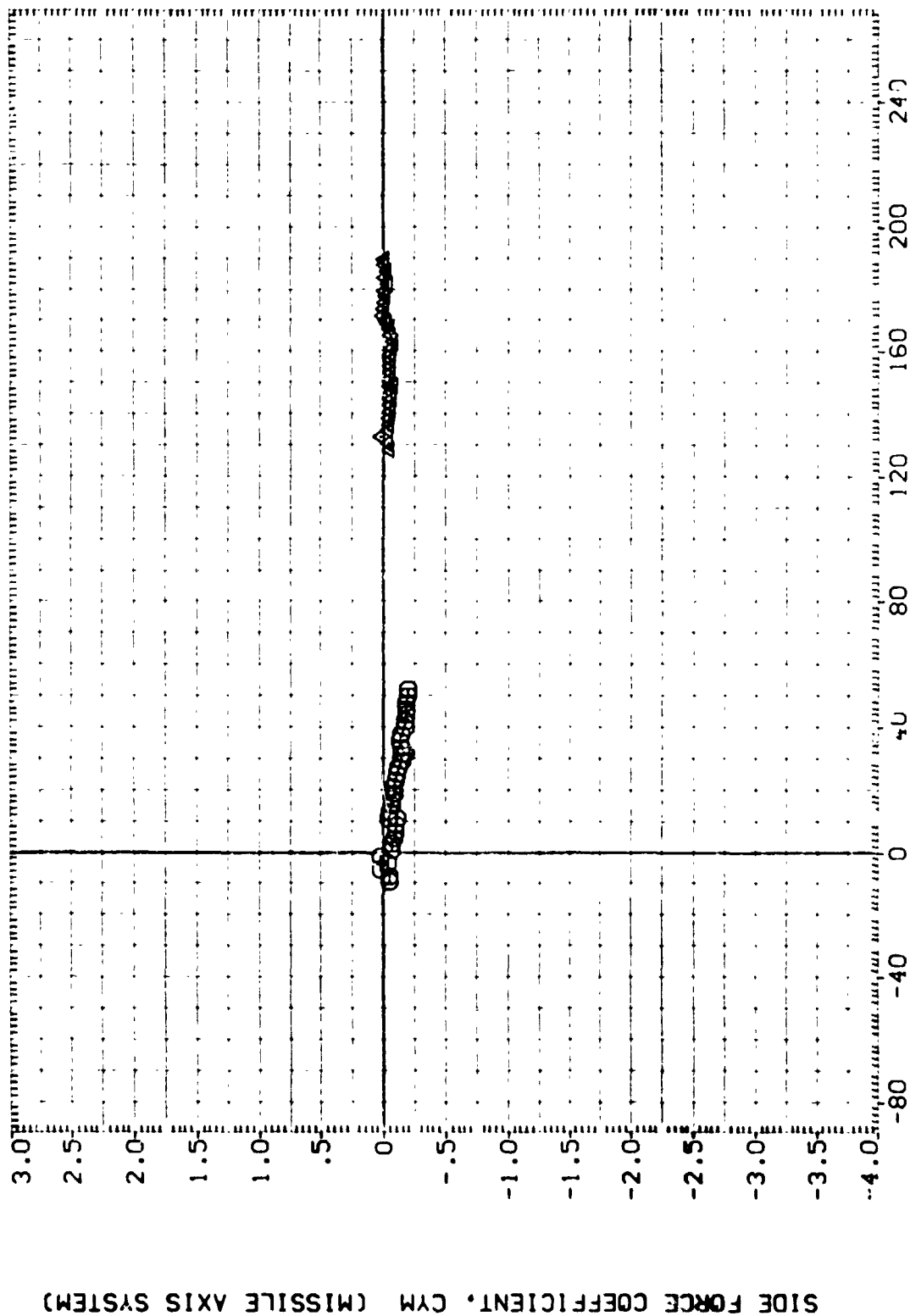


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5000 IN.
(A1H404)	DATA NOT AVAILABLE	90.000	LREF .8000 IN.
(A1H405)	DATA NOT AVAILABLE	90.000	BREF 5.7210 IN.
(A1H405)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

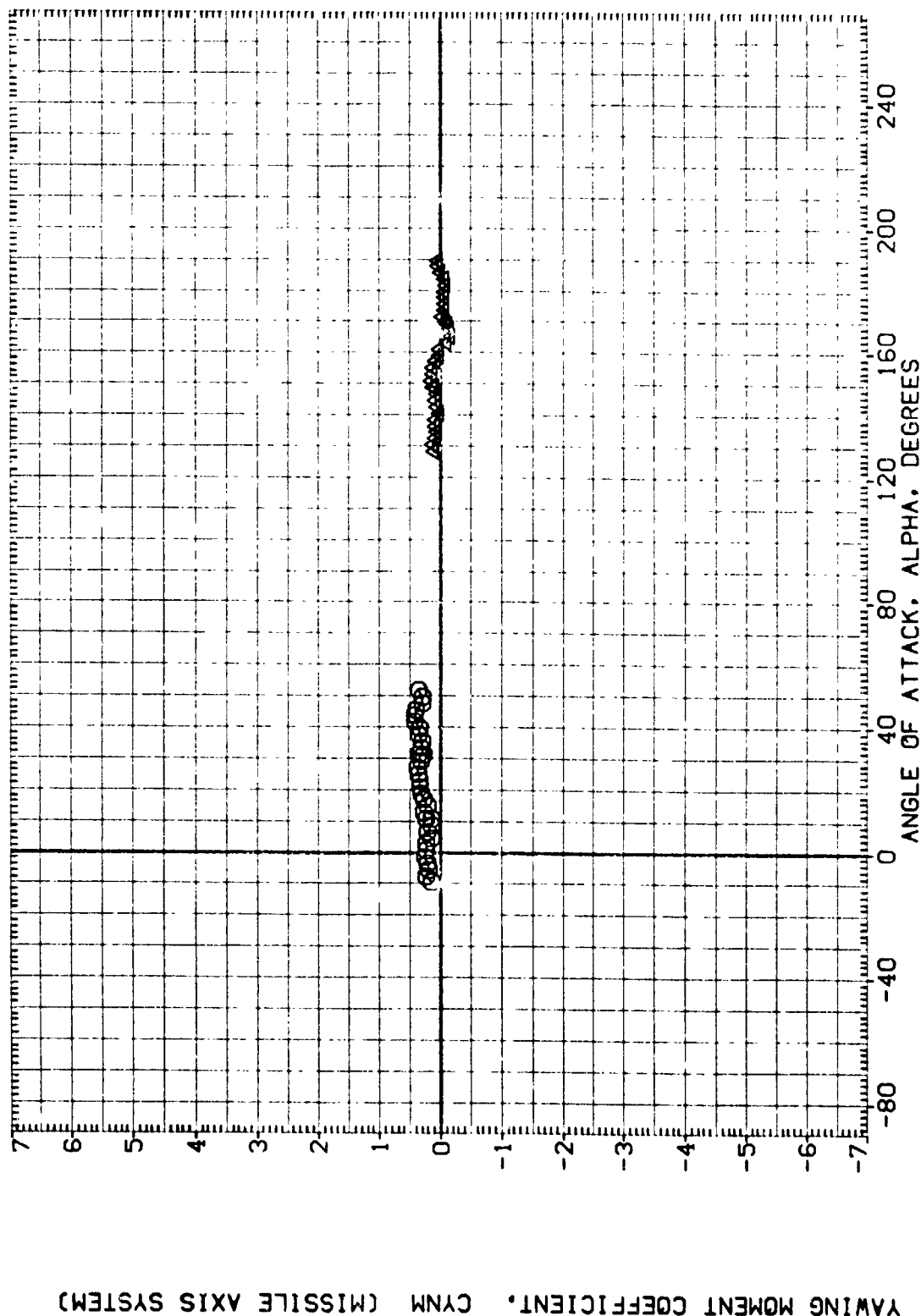


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ.IN.
(A1H040)	DATA NOT AVAILABLE	90.000	LREF .8000 IN.
(A1H005)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

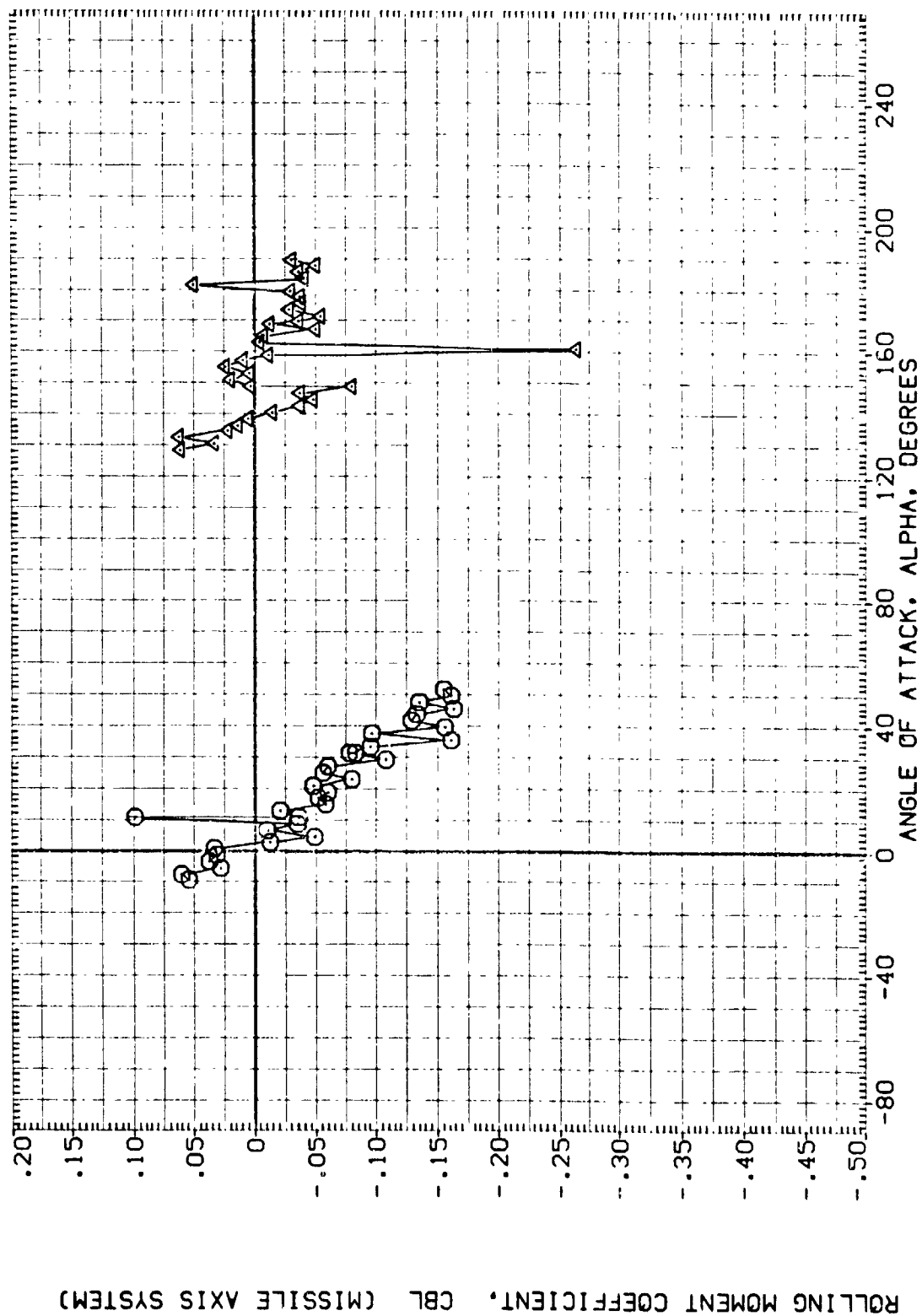


FIGURE 21. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 90)



REFERENCE INFORMATION

SAFE	5030	IN.
LRP	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0700	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

135.000
135.000
135.000

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H006)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(A1H048)	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H049)	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H050)	MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES

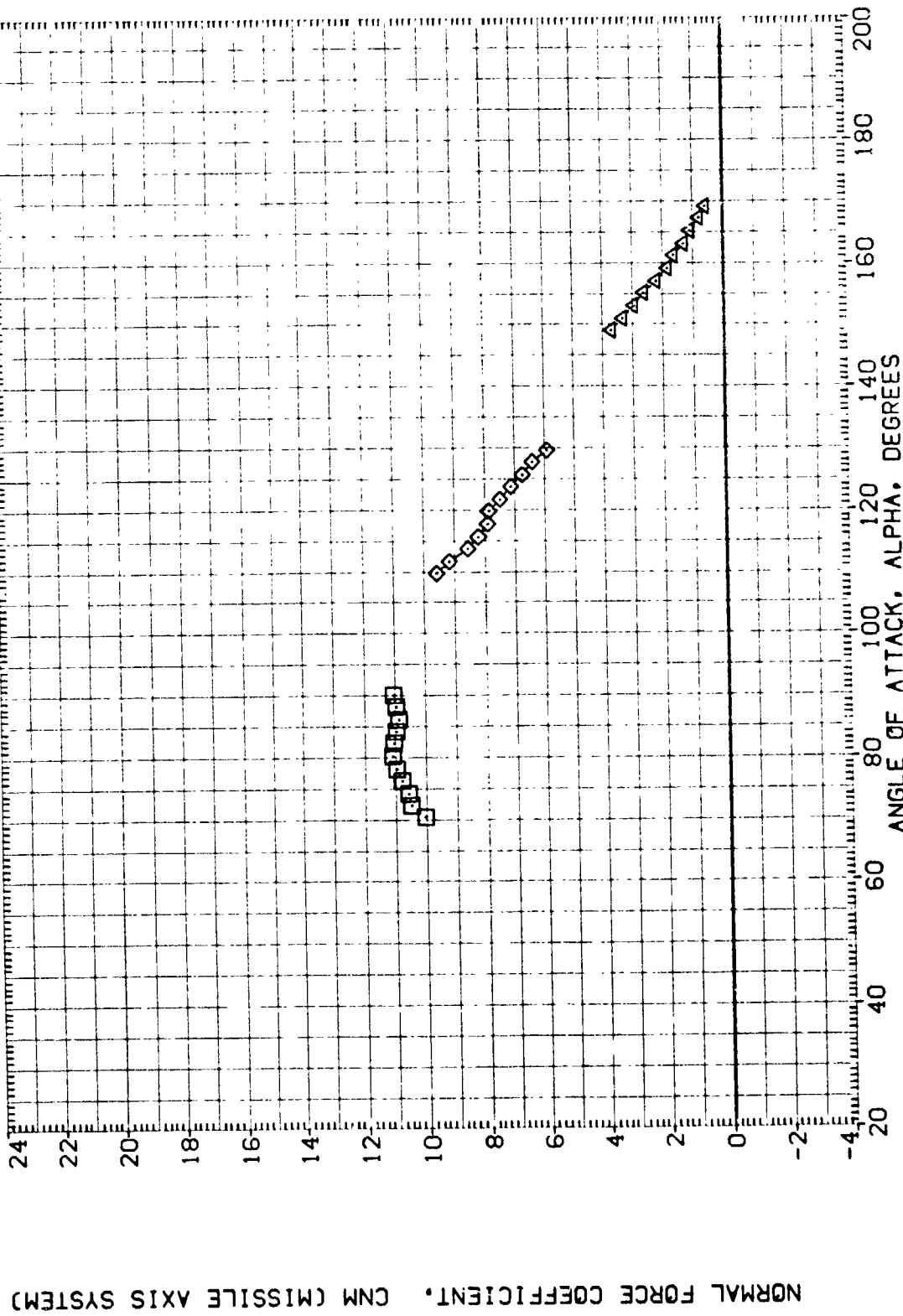


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH005)	DATA NOT AVAILABLE	135.000	SREF .5030 IN.
(AIH048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(AIH049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

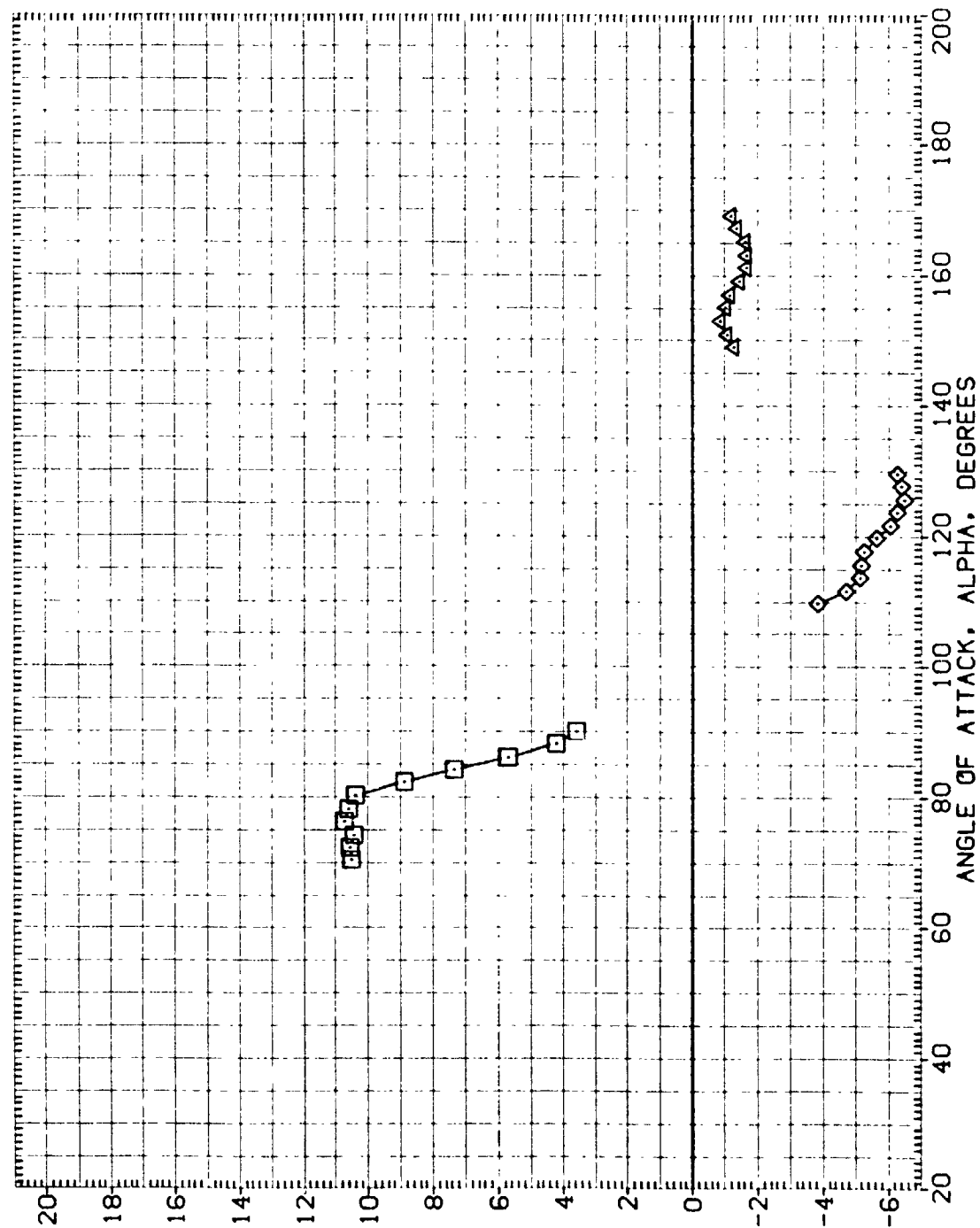


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A) MACH = .40

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H005)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	135.000	SREF	.5030	50.30 IN.
(A1H048)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	135.000	LRREF	.8000	80.00 IN.
(A1H049)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	135.000	BRREF	.8000	80.00 IN.
(A1H050)	△	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	135.000	YMRP	5.7210	572.10 IN.
					YMRP	.0000	0.00 IN.
					ZMRP	.0000	0.00 IN.
					SCALE	.0055	0.055 IN.

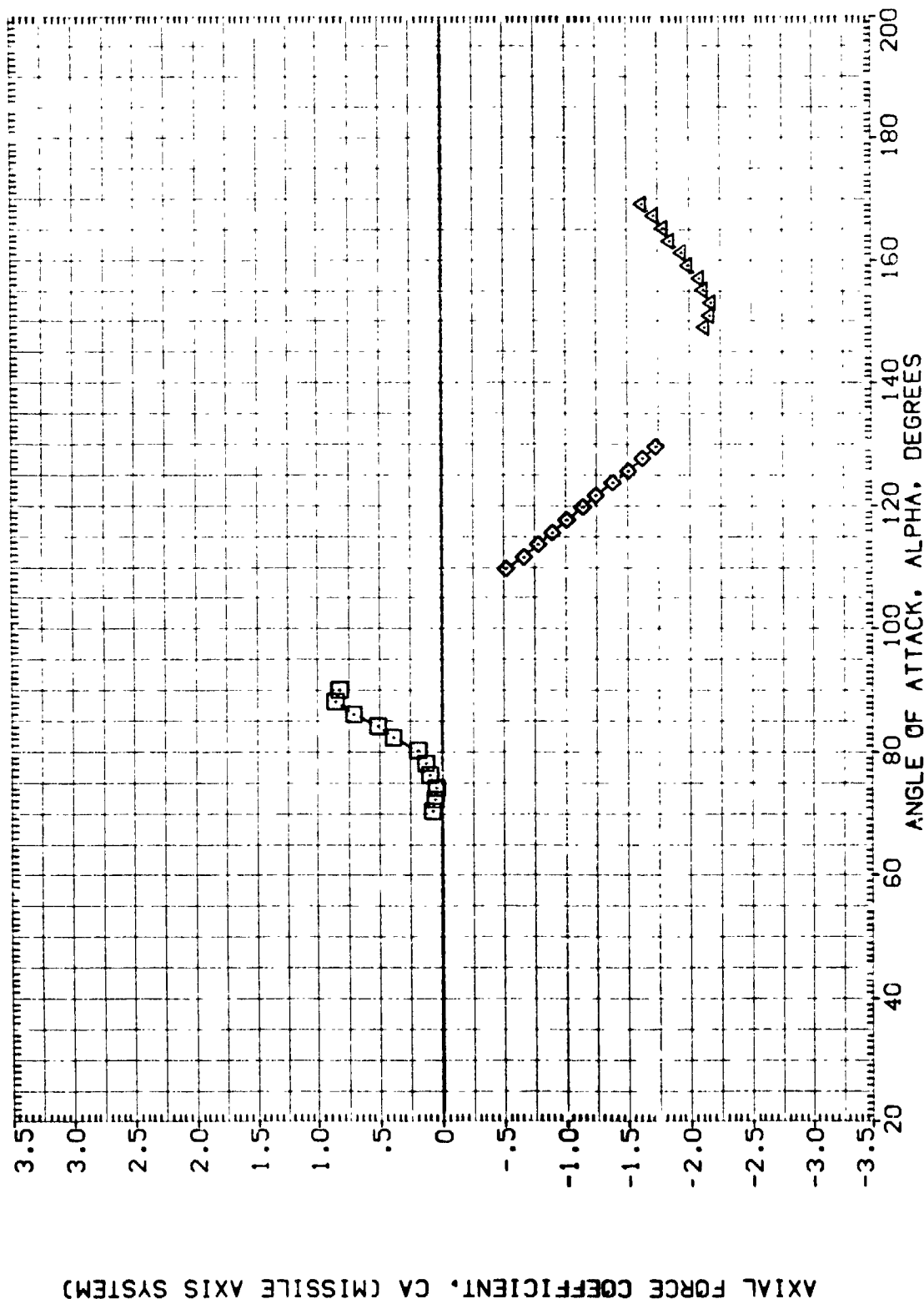


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

CA/MACH = .40

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H036)    DATA NOT AVAILABLE    135.000

(A1H048)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H049)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H050)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

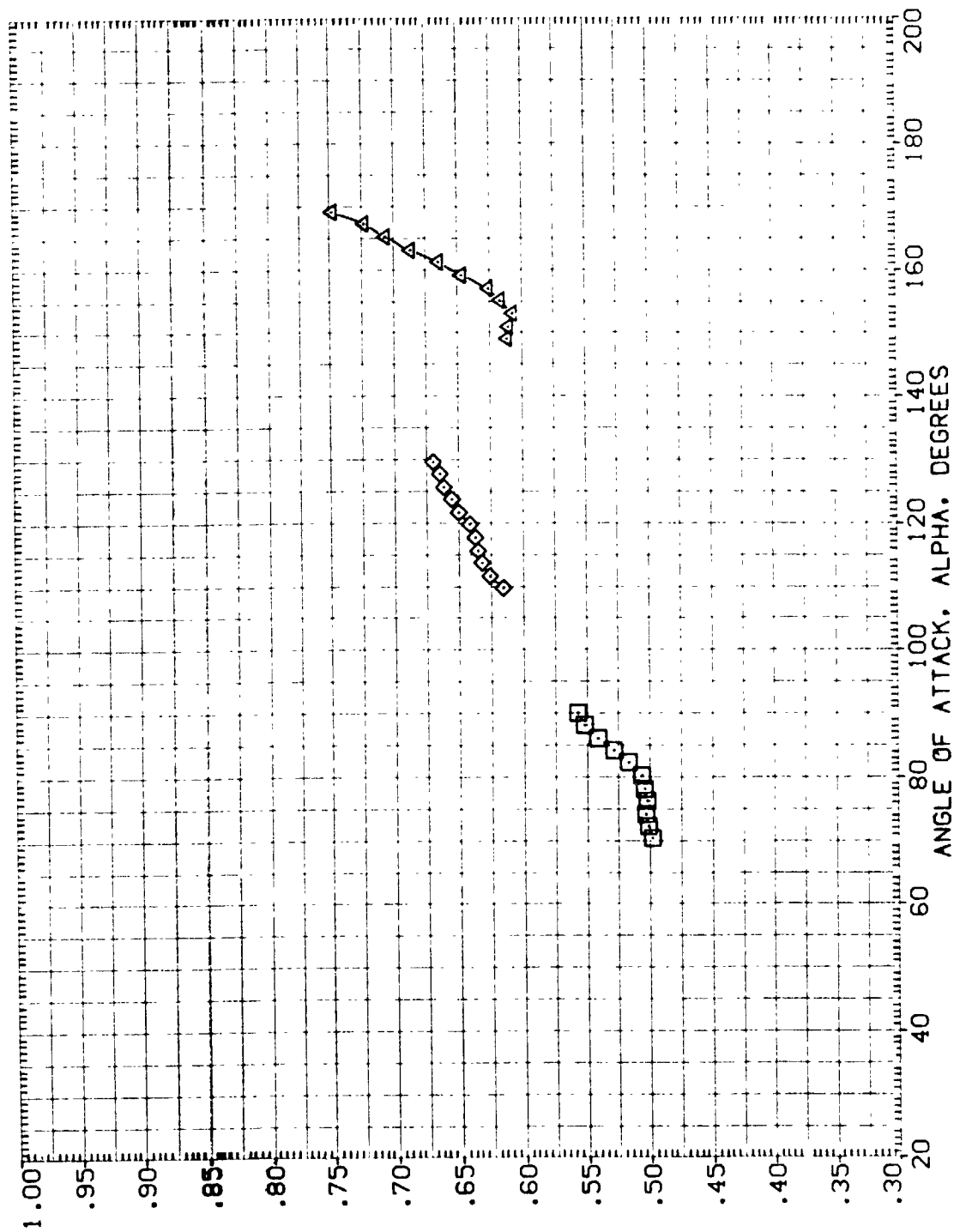


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A)MACH = .40

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

[A1H006]      DATA NOT AVAILABLE

[A1H048]      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

[A1H049]      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

[A1H050]      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

135.000

135.000

135.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN.

YMRP .0000 IN.

ZMRP .0000 IN.

SCALE .0055

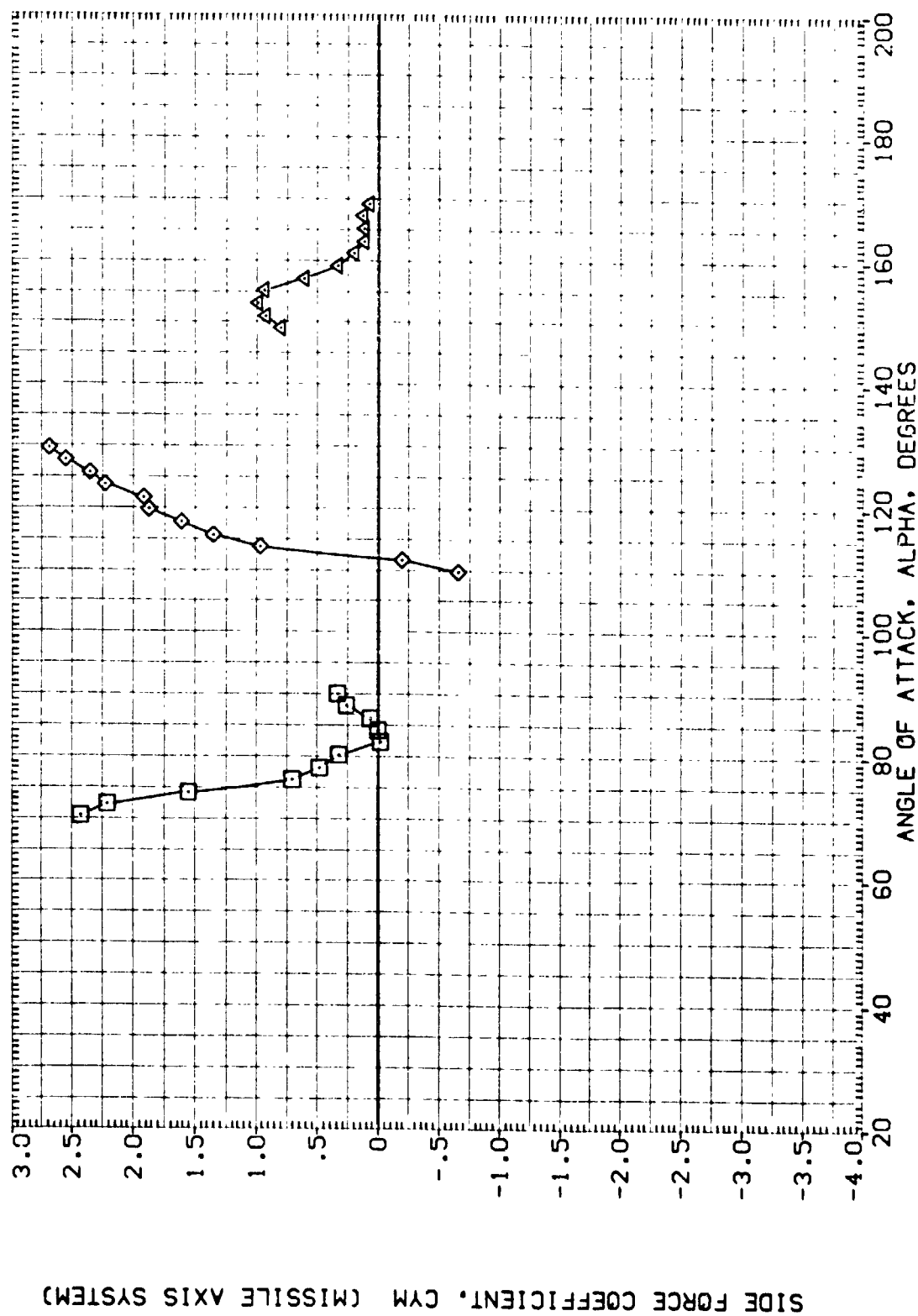


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

CAJ MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H006)	DATA NOT AVAILABLE	135.000	SREF .5030 IN.
(A)H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A)H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A)H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

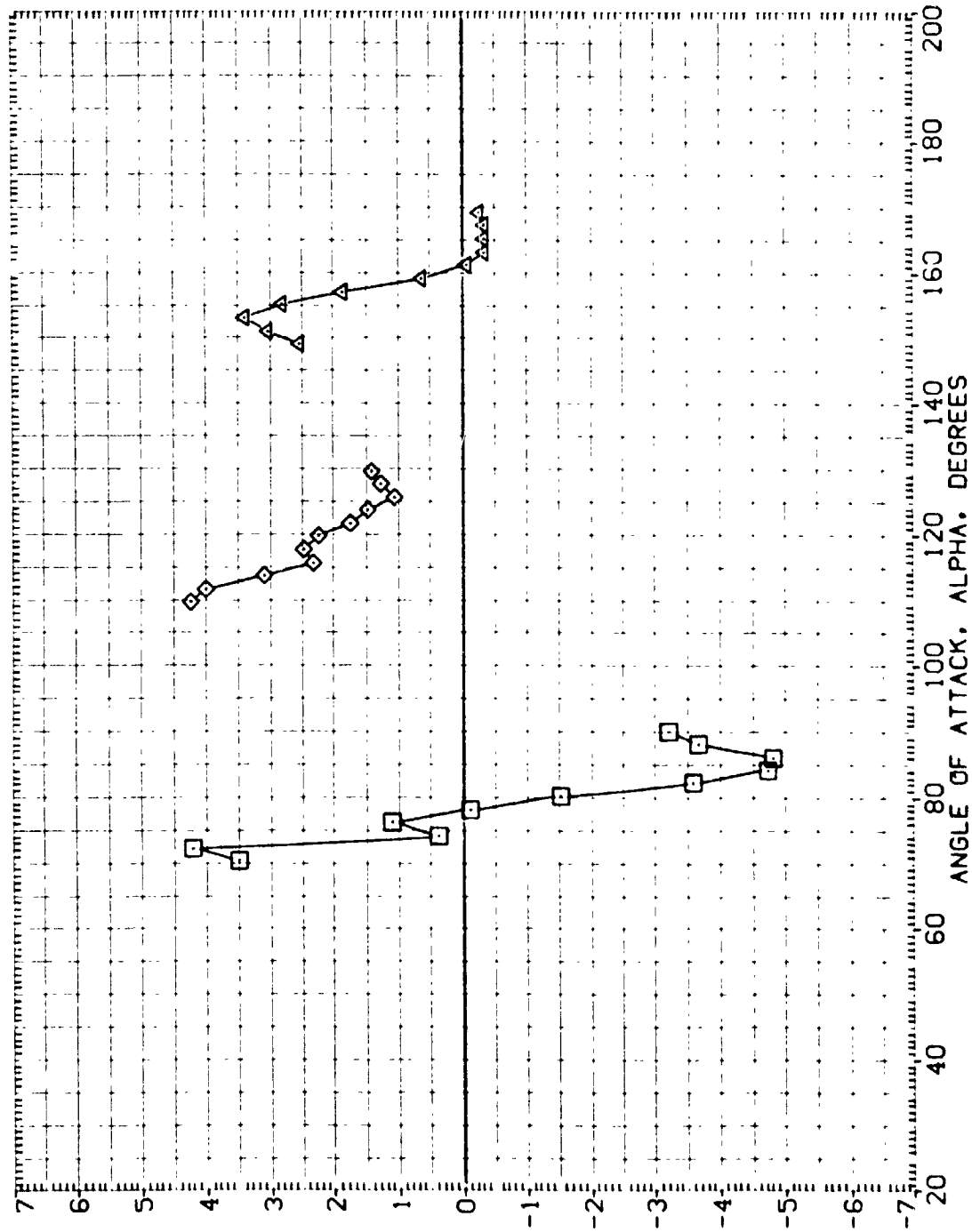


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A)MACH = .40

DATA SET SYMBOL

(A1H005)

CONFIGURATION DESCRIPTION

DATA NOT AVAILABLE

PHI

135.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

(A1H008)

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

(A1H043)

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

(A1H050)

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN.

YMRP .0000 IN.

ZMRP .0000 IN.

SCALE .0055

XS

YS

ZS

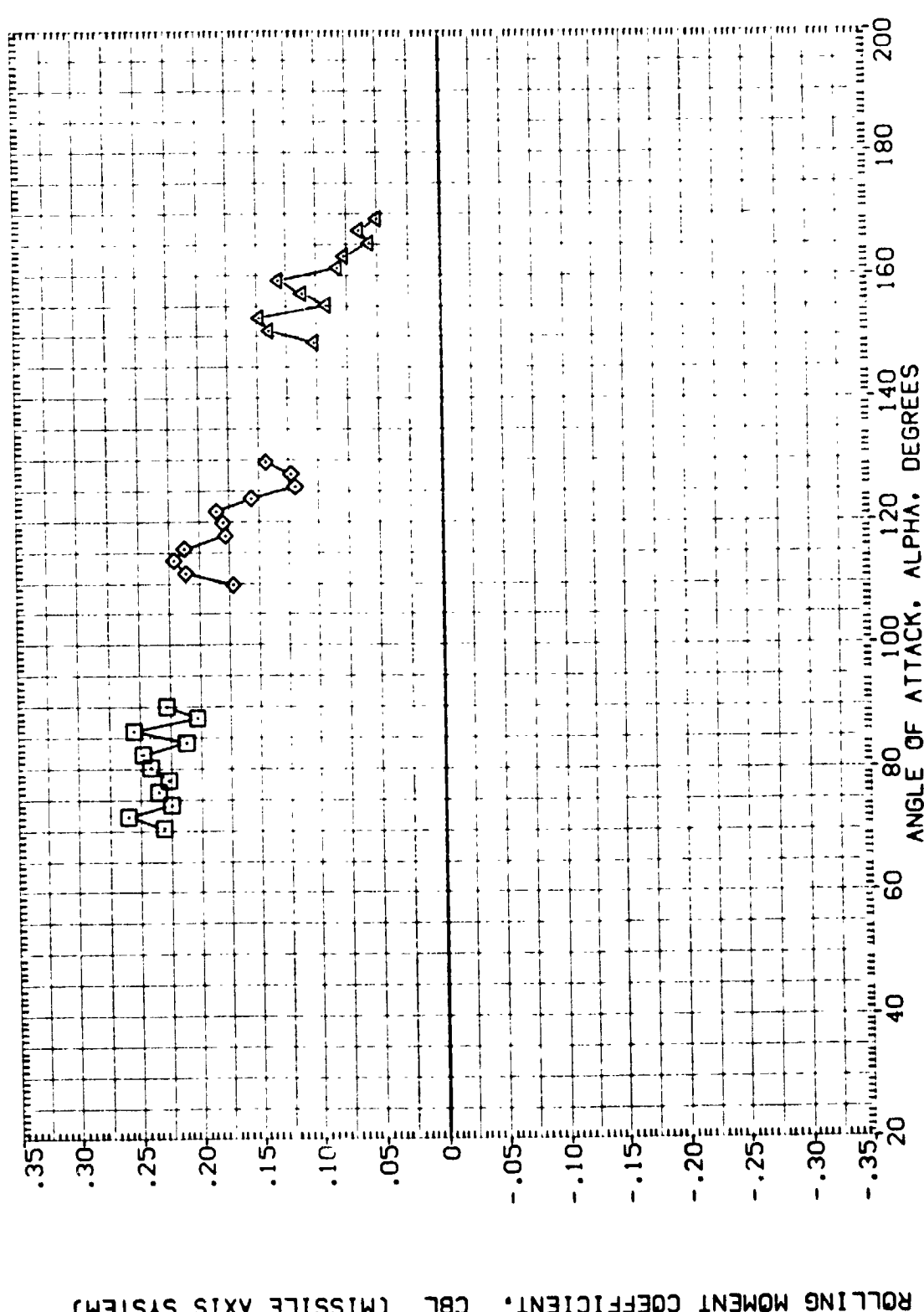


FIGURE 22. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 135)

==

DA A SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1-1006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1-1018)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1-1019)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1-1050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

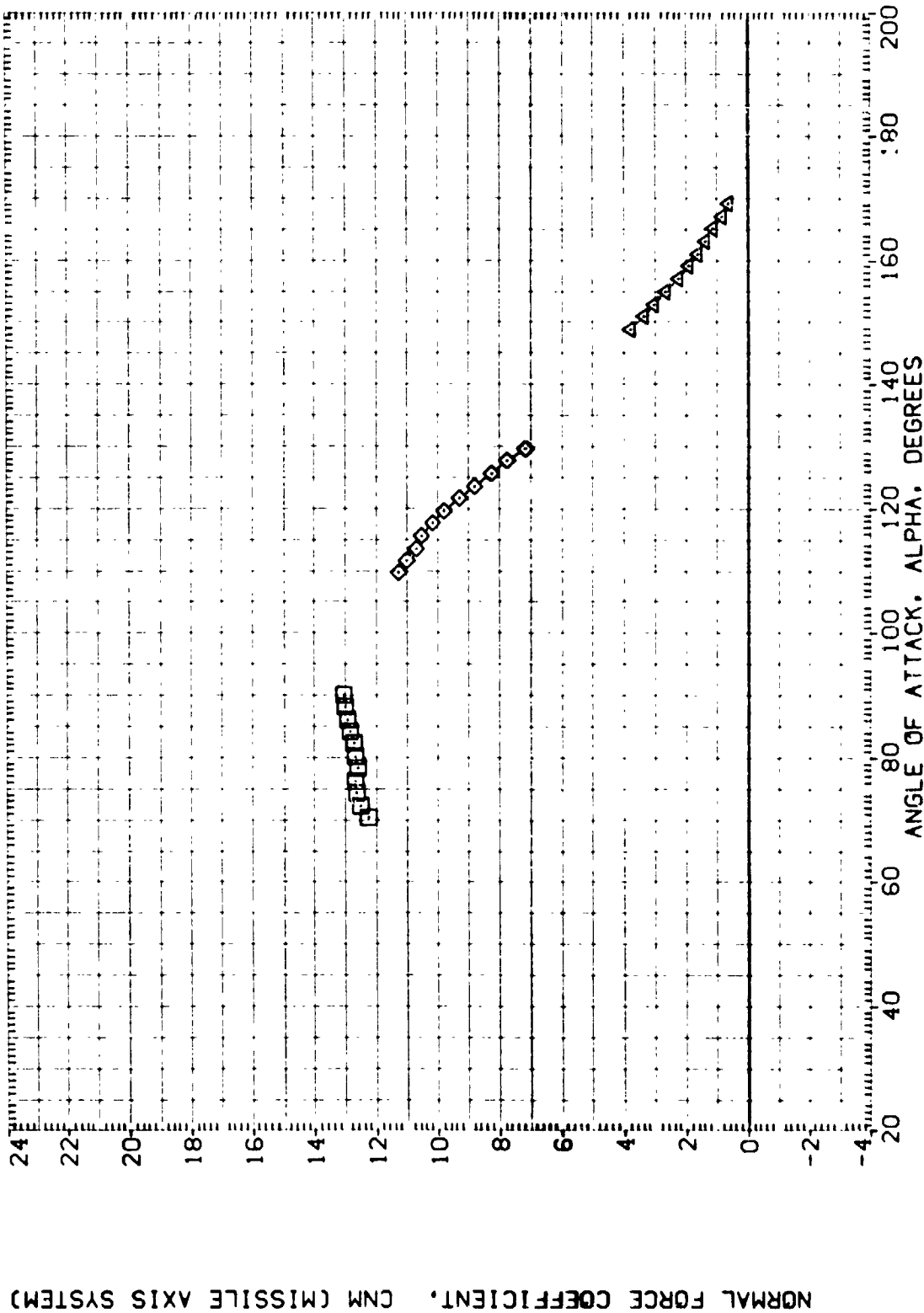


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(B)MACH = .60



DATA SET SYMBOL: (A1H006) (A1H048) (A1H049) (A1H050)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI: 135.000 135.000 135.000

REFERENCE INFORMATION: SREF 5030 SQ. IN. LREF 8000 IN. BREF 8000 IN. XMRP 5.7210 IN. YMRP 0.0000 IN. ZMRP 0.0000 IN. SCALE 0.0055

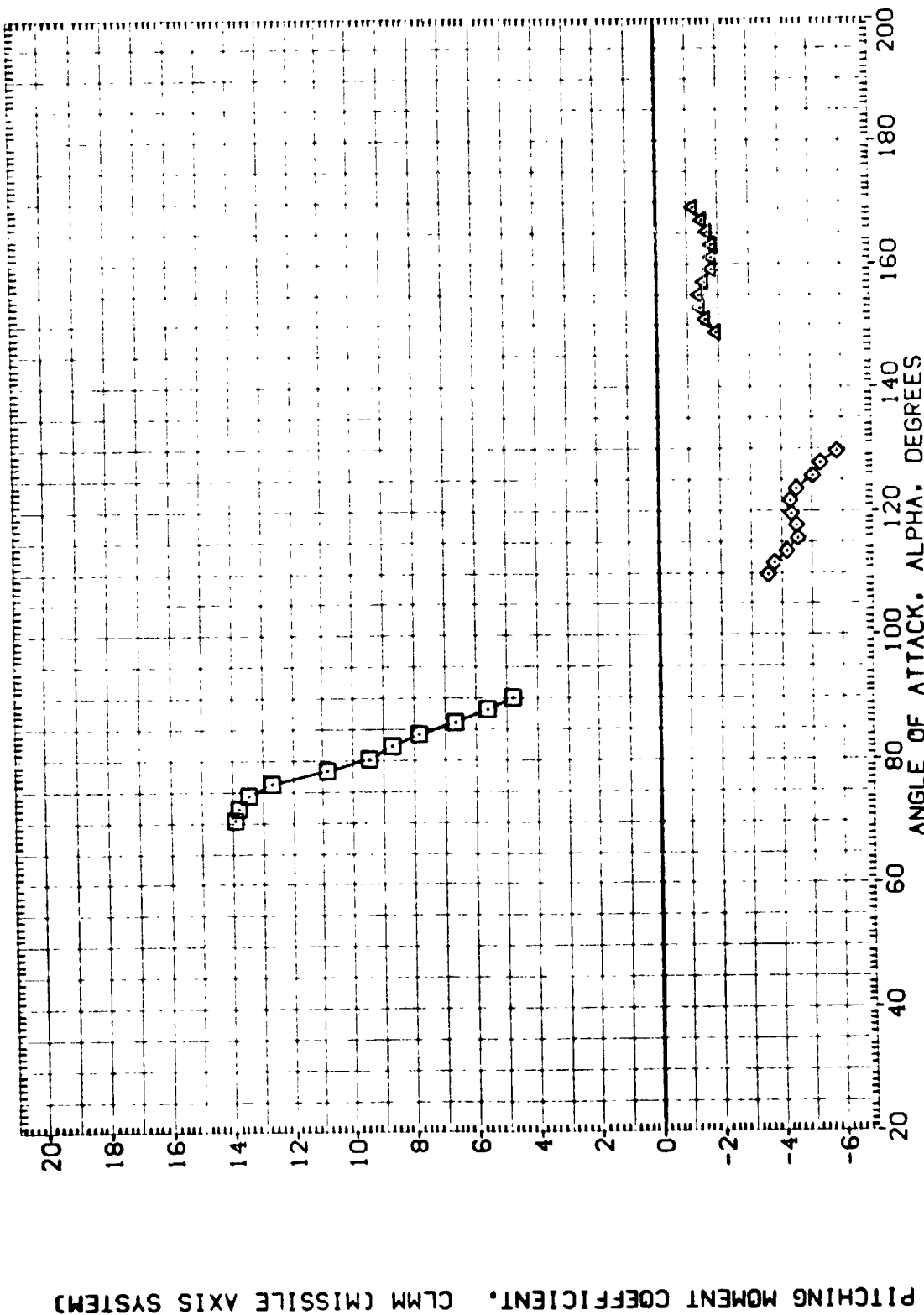


FIGURE 22. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 135)

(8)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .5030 IN.
(A1H046)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF 5.7210 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

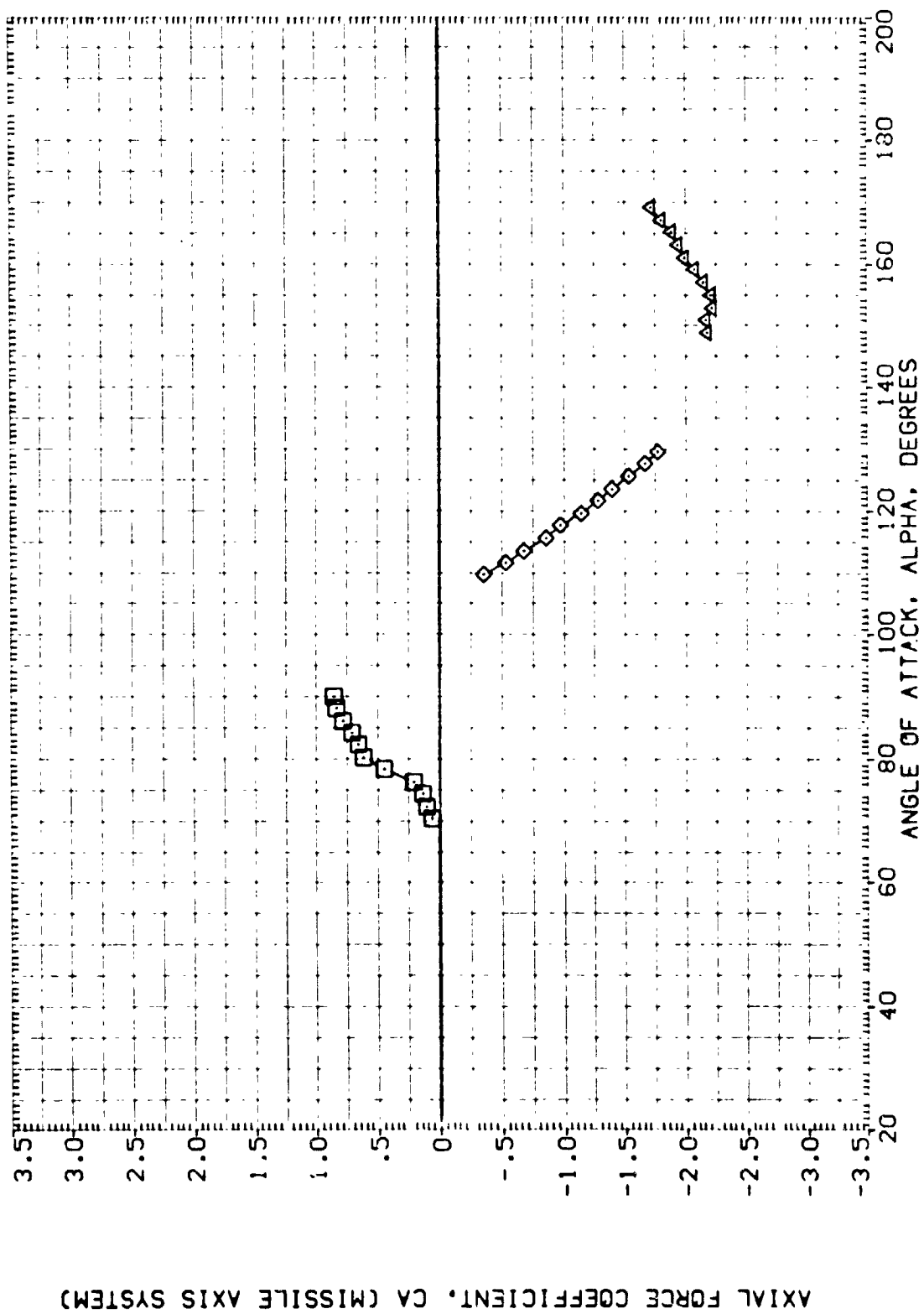


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(B)MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H406)      DATA NOT AVAILABLE      135.000

(A1H408)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H409)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H450)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

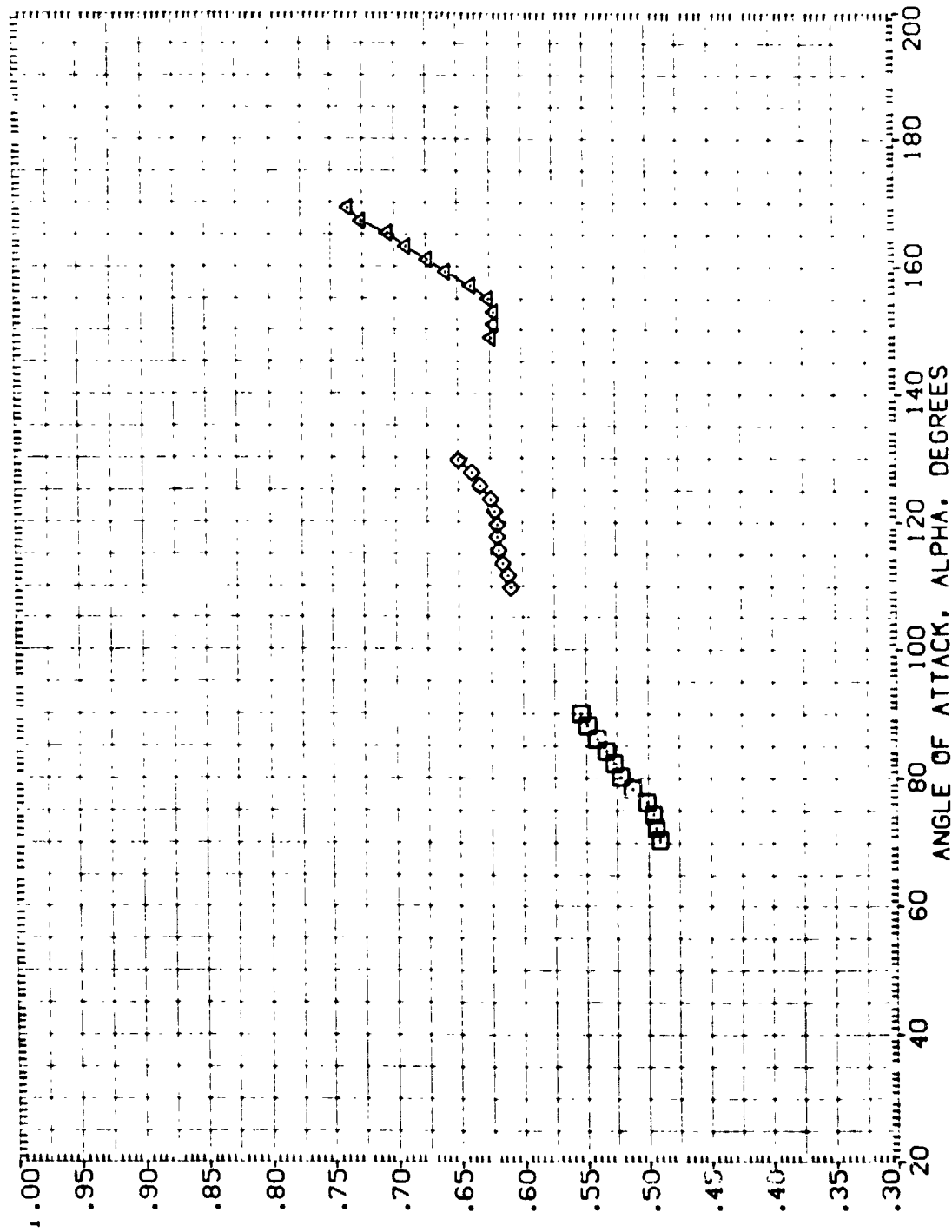


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LRFP .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BRFP .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

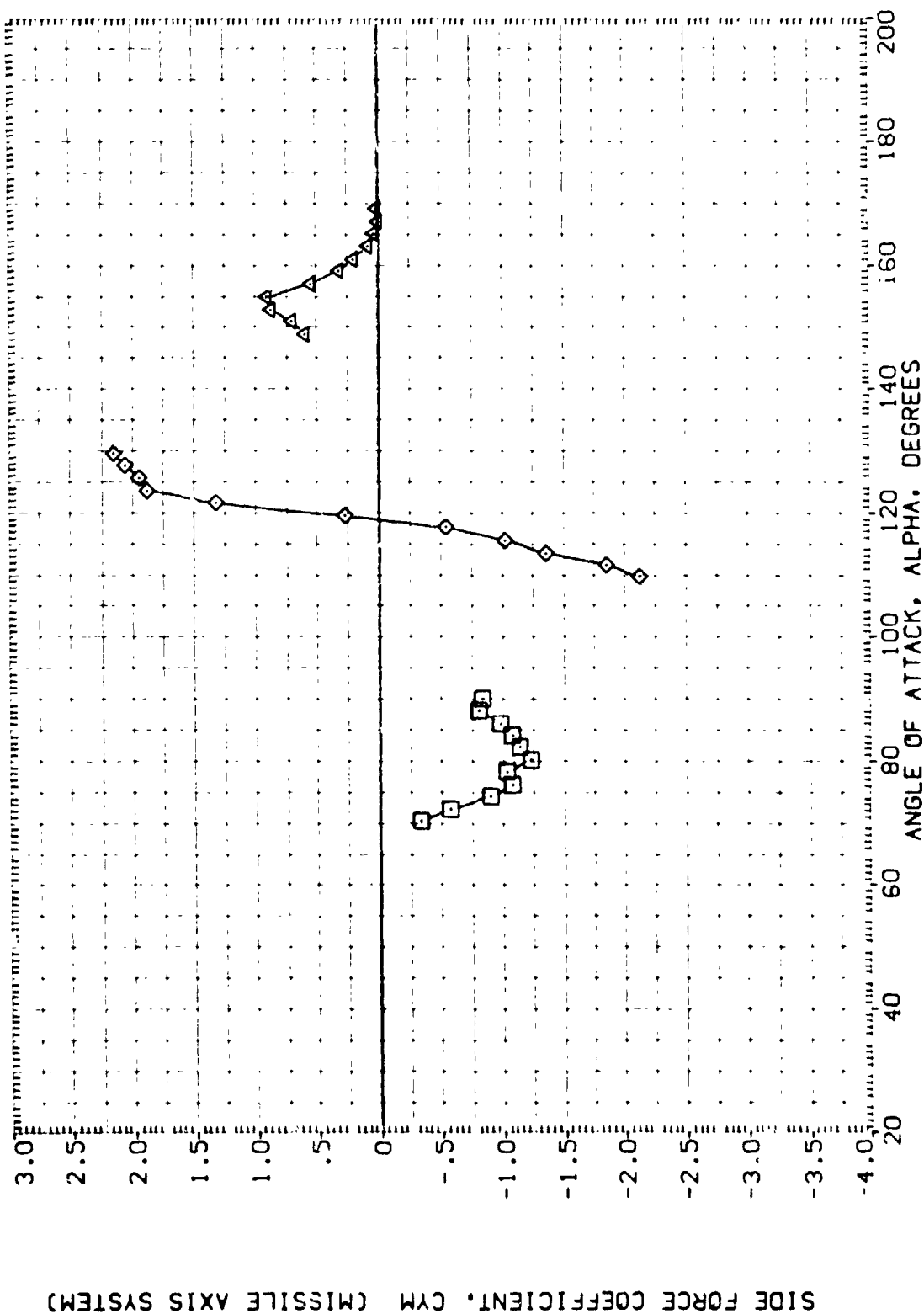


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(B) MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H006)	DATA NOT AVAILABLE	135.000	SREF	.5030	IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF	.8000	IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF	.8000	IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP	5.7210	IN.
			YMRP	.0000	IN.
			ZMRP	.0000	IN.
			SCALE	.0055	

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

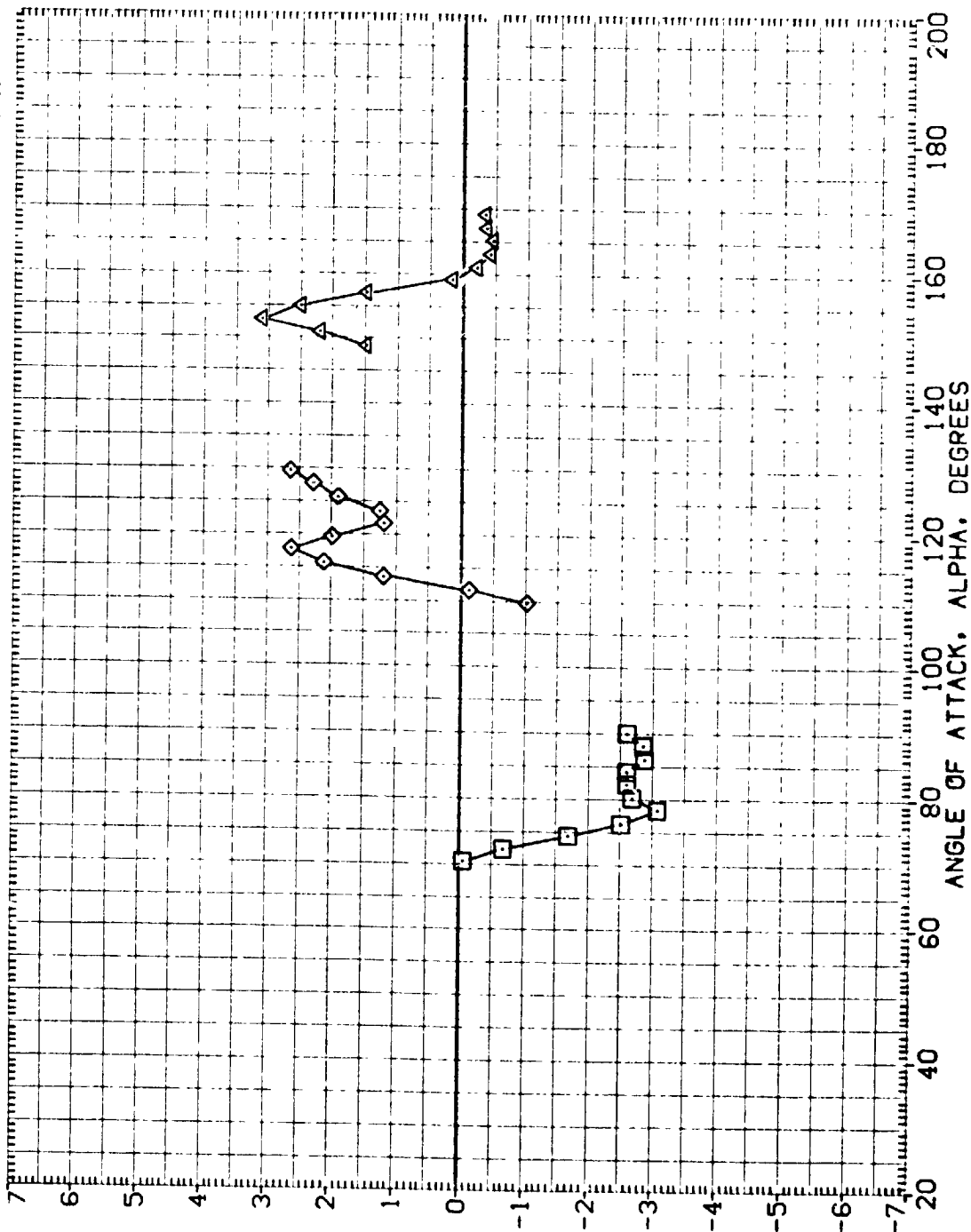


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

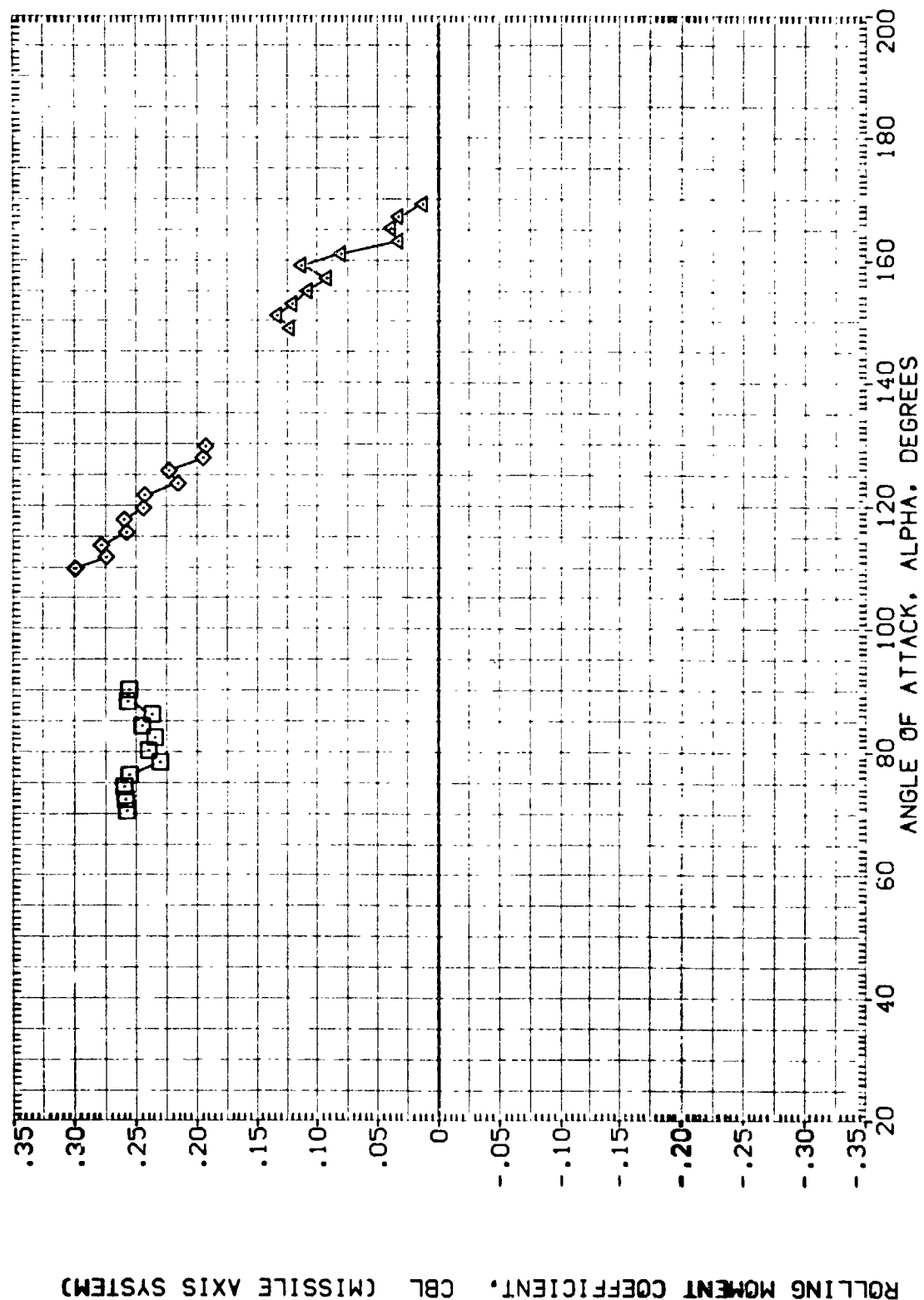


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(B)MACH = .60

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

135.000
135.000
135.000

CONFIGURATION DESCRIPTION

DATA NOT AVAILABLE  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL  
 (A1H406)  
 (A1H408)  
 (A1H409)  
 (A1H450)

NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

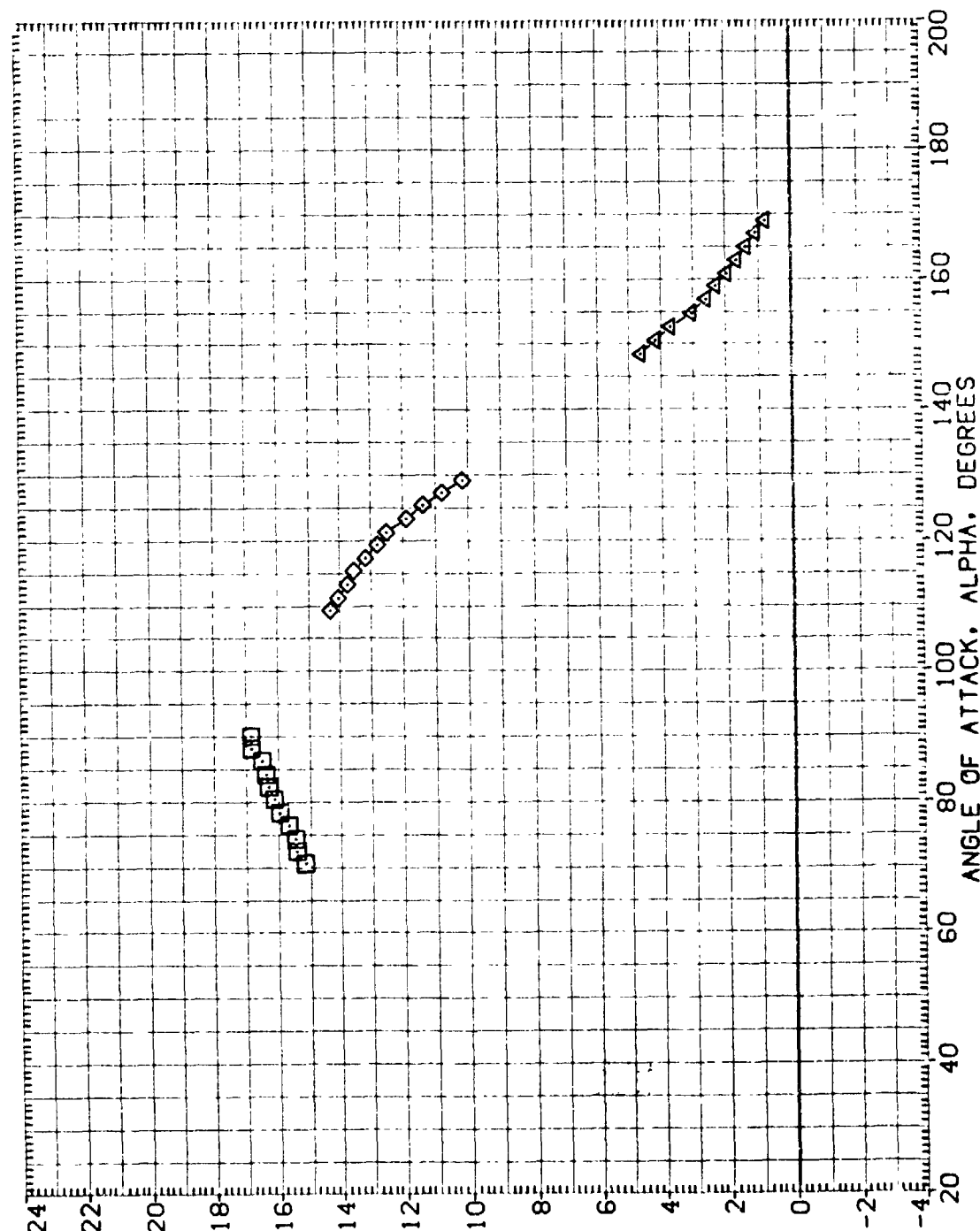


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .9000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

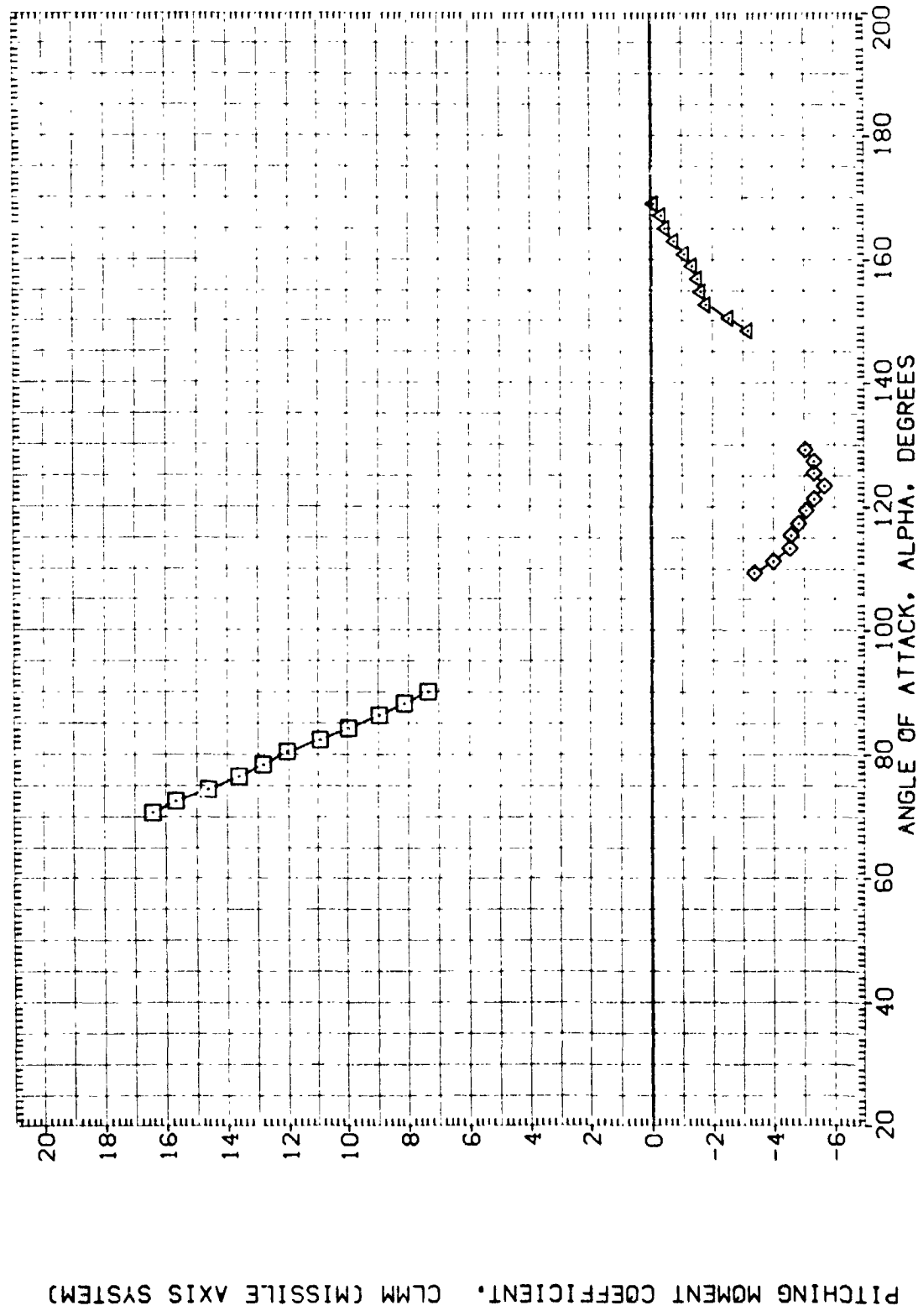


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = .90



REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.6000	IN.
BREF	.8000	IN.
YMRP	5.7210	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

135.000
135.000
135.000

DATA SET SYMBOL

(A1H006)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(A1H048)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H049)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(A1H050)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

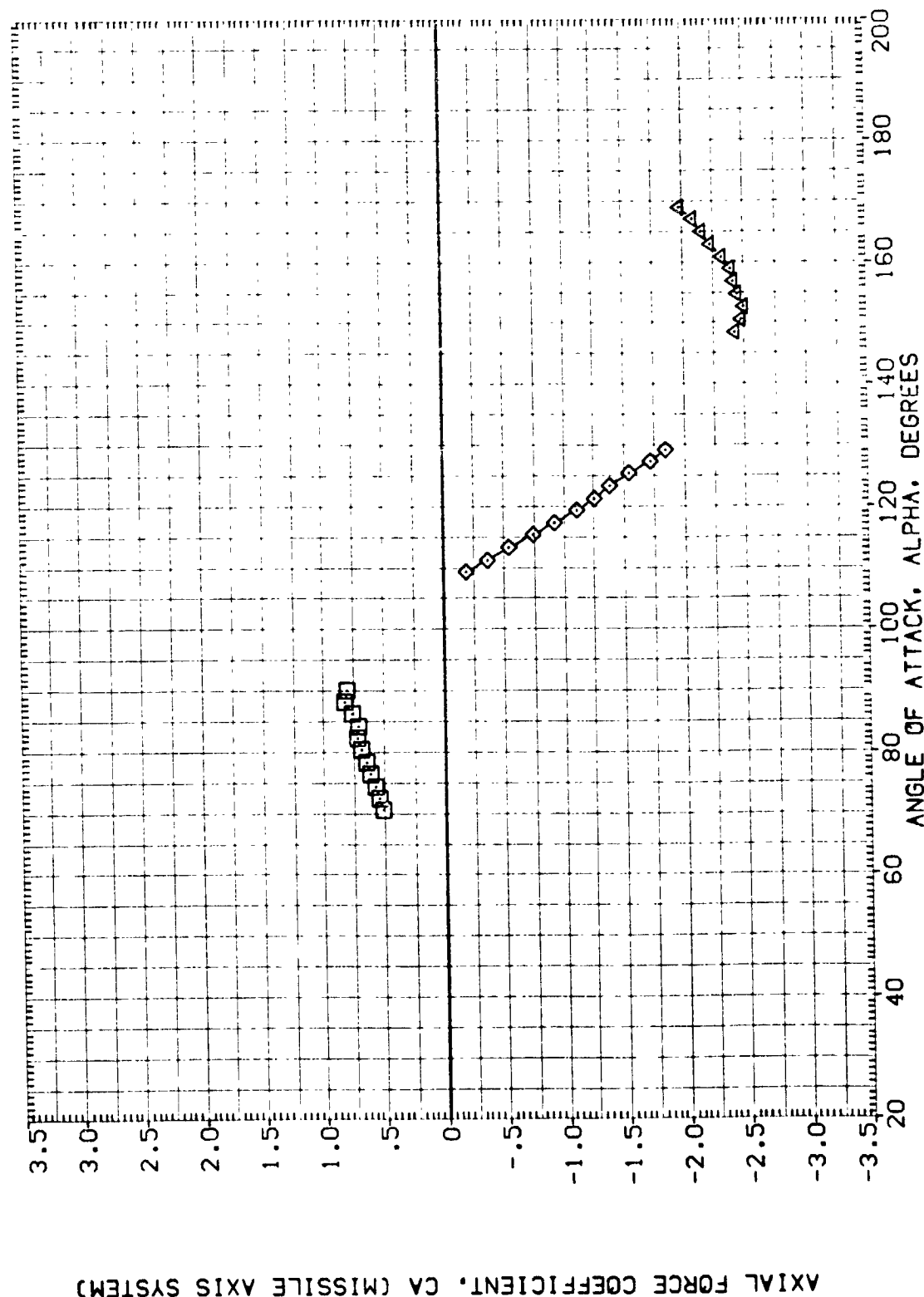


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION
(A1H06)	DATA NOT AVAILABLE	SRB WITH
(A1H08)	M5EC T17604 (SABF)	SRB WITH
(A1H09)	M5FC T17604 (SABF)	SRB WITH
(A1H050)	M5FC T17604 (SABF)	SRB WITH

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

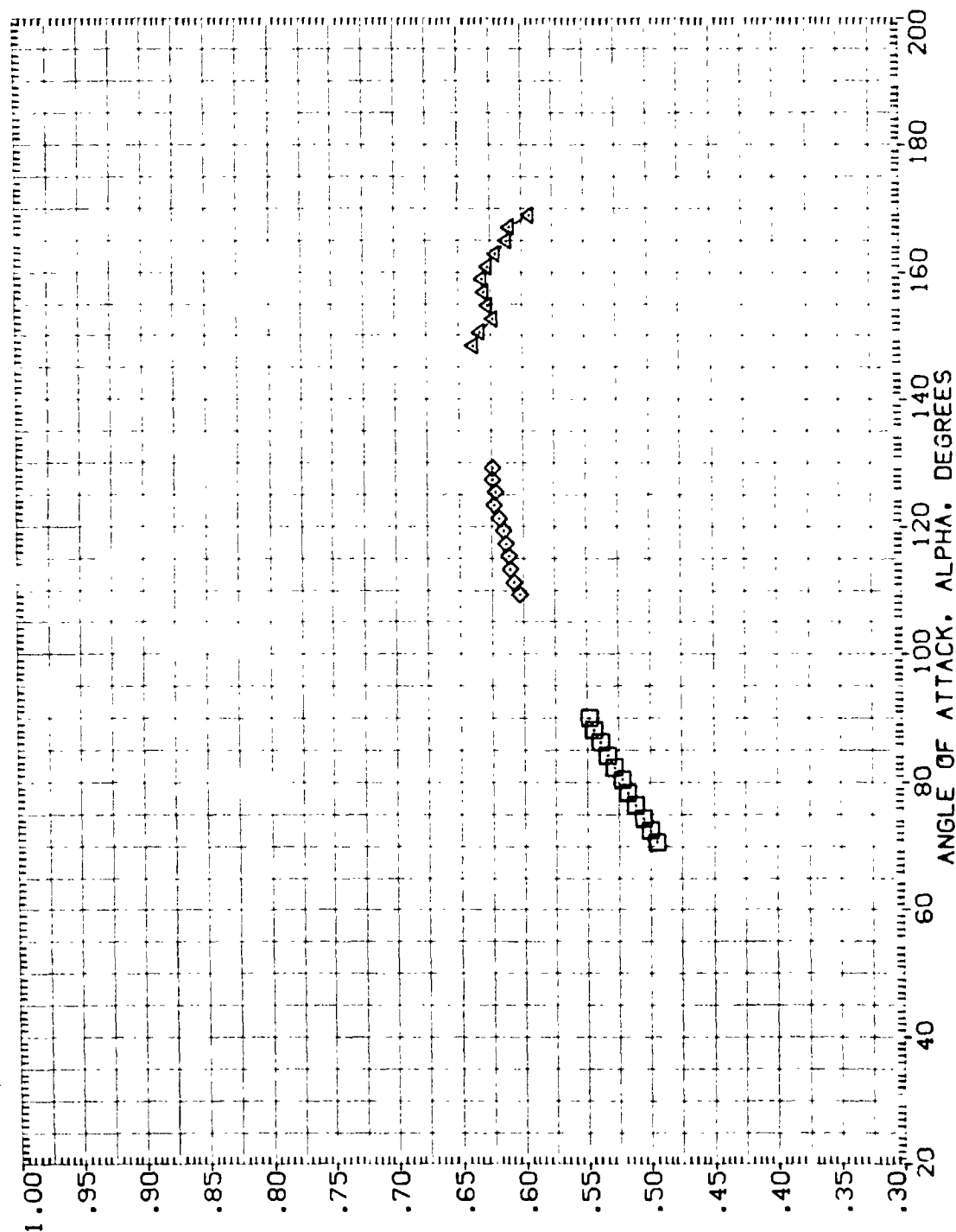


FIGURE 22. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES ( $\text{PHI} = 135$ )

# DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H006)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES  
 (A1H048)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES  
 (A1H049)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES  
 (A1H050)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

PHI  
 135.000  
 135.000  
 135.000

REFERENCE INFORMATION  
 SREF      5030      SQ. IN.  
 LREF      8000      IN.  
 BREF      8000      IN.  
 XMRP      5.7210      IN.  
 YMRP      0.0000      IN.  
 ZMRP      0.0000      IN.  
 SCALE      .0055

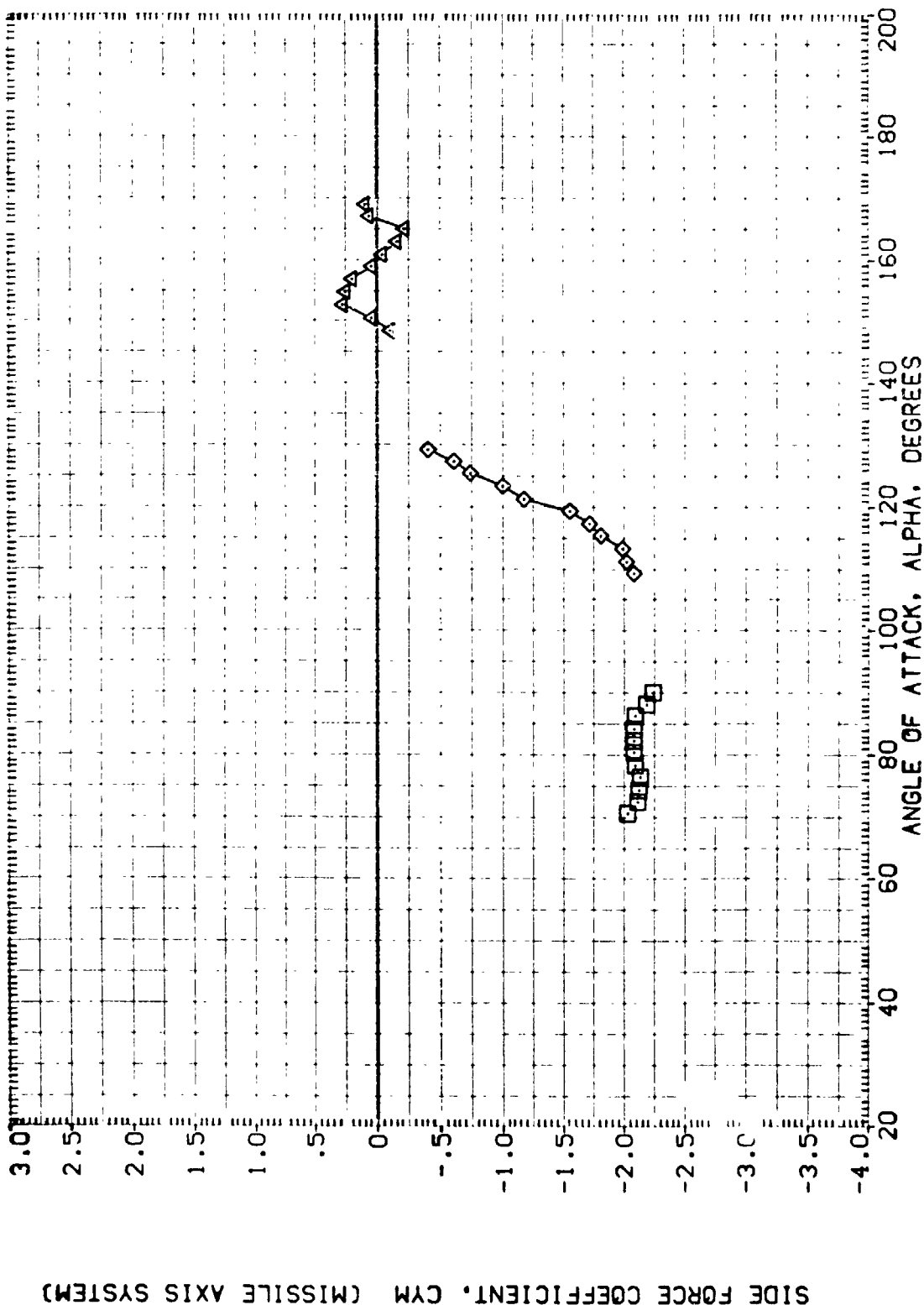


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = .90

DATA SET SY 30L	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

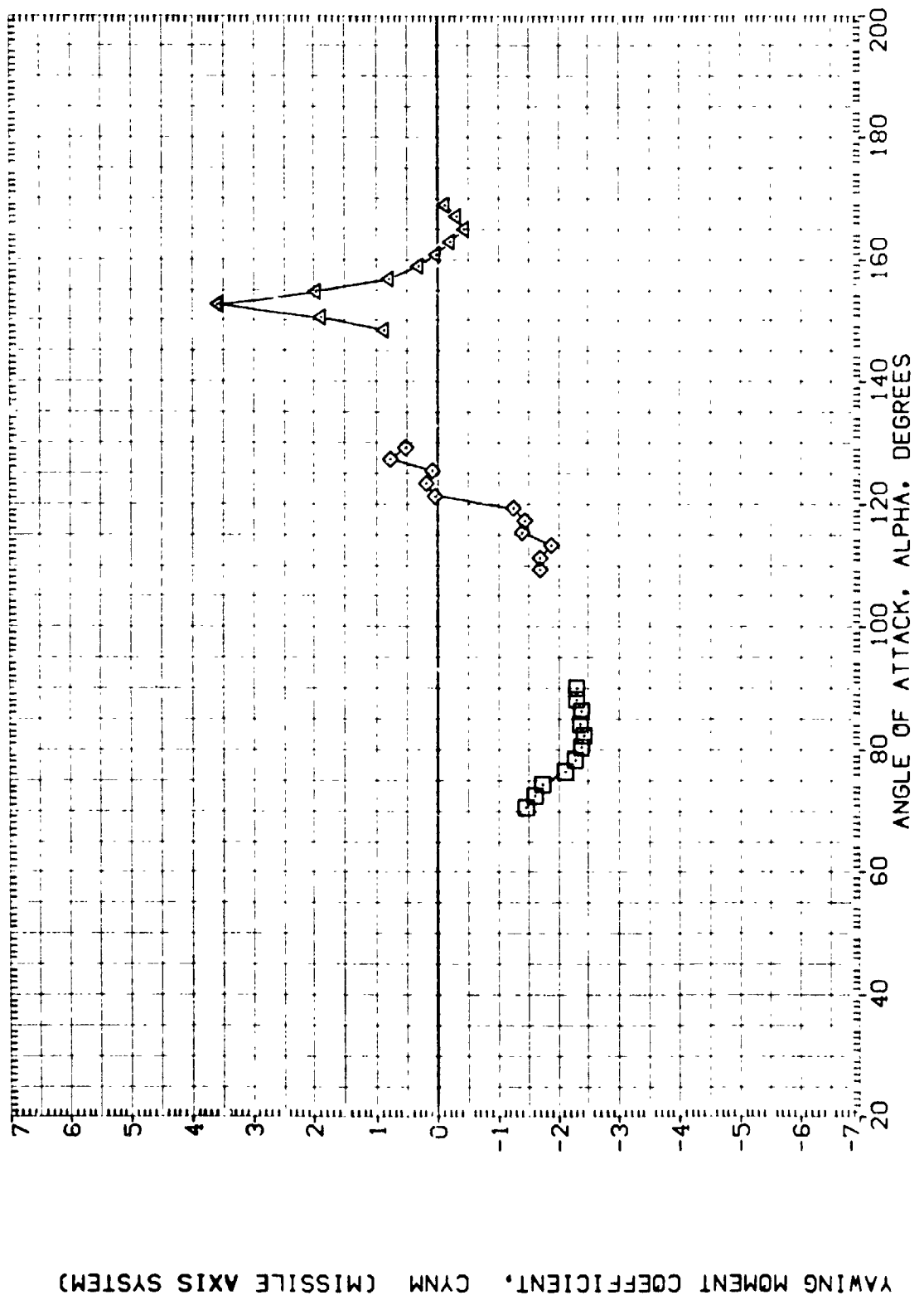


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H006) DATA NOT AVAILABLE SRB WITH ALL PROTUBERANCES  
 (A1H048) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H049) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H050) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

135.000  
 135.000  
 135.000

REFERENCE INFORMATION

SREF .5030 50. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XRRP S.7210 IN. XS  
 YRRP .0000 IN. YS  
 ZRRP .0000 IN. ZS  
 SCALE .0055

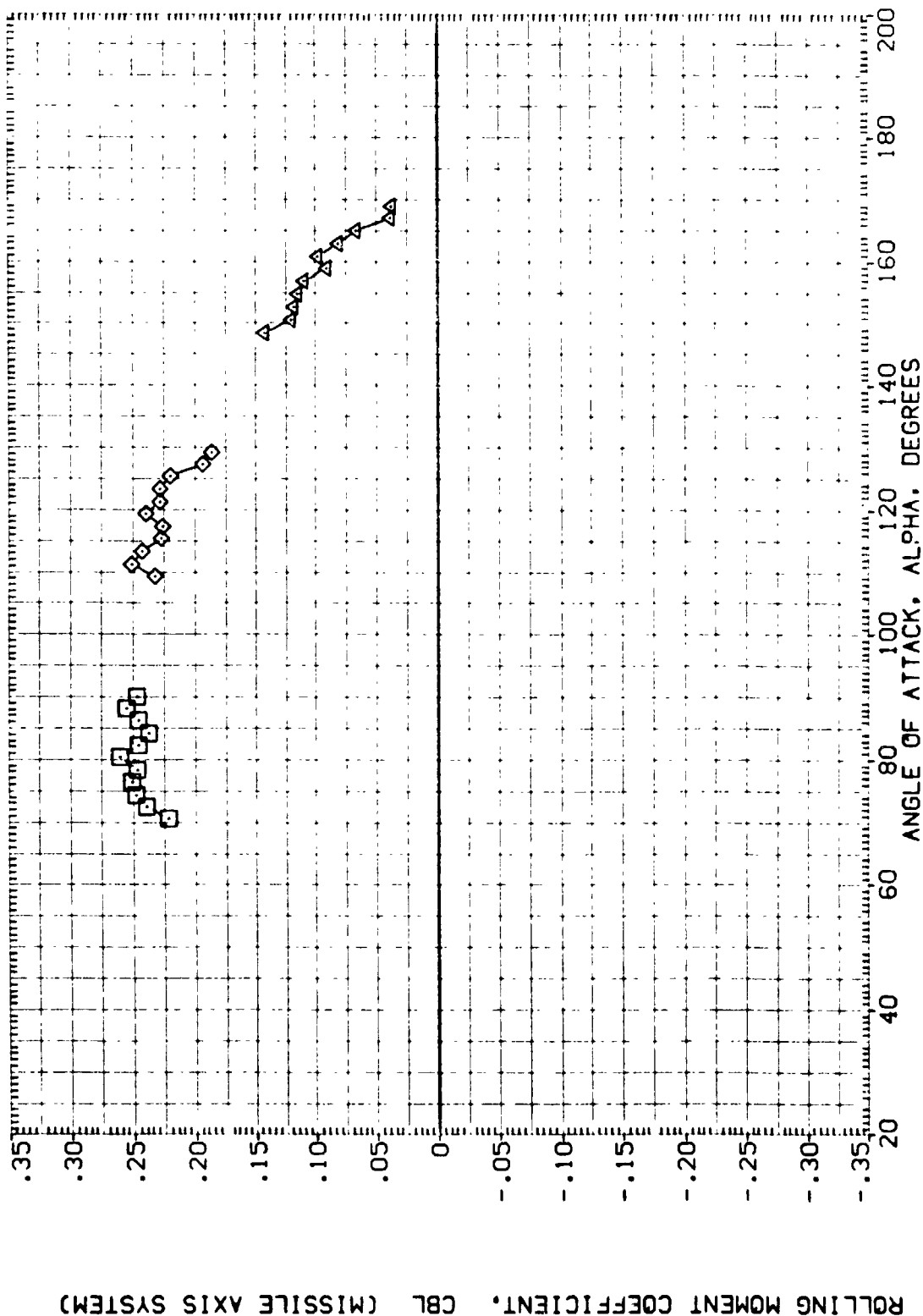


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(AIH048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(AIH049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XRRP 5.7210 IN. XS
			YRRP .0000 IN. YS
			ZRRP .0000 IN. ZS
			SCALE .0055

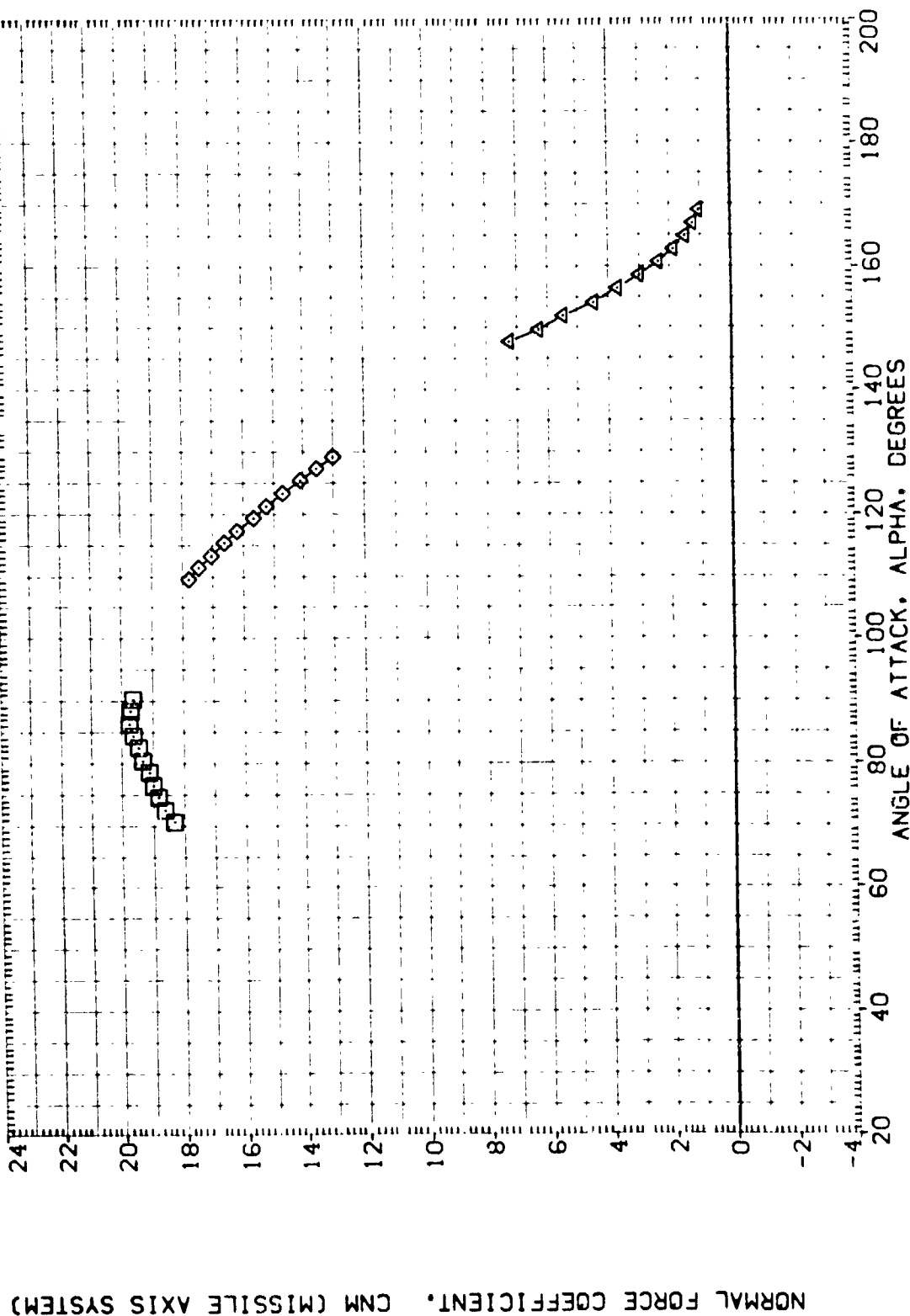


FIGURE 22. STATIC STABILITY CHARACTER. OF SRB W/ALL PROTUBERANCES (PHI = 135)

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
YMRP	5.7210	IN.
ZMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

135.000
135.000
135.000

DATA SET SYMBOL

(AIH006)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(AIH048)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH049)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH050)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

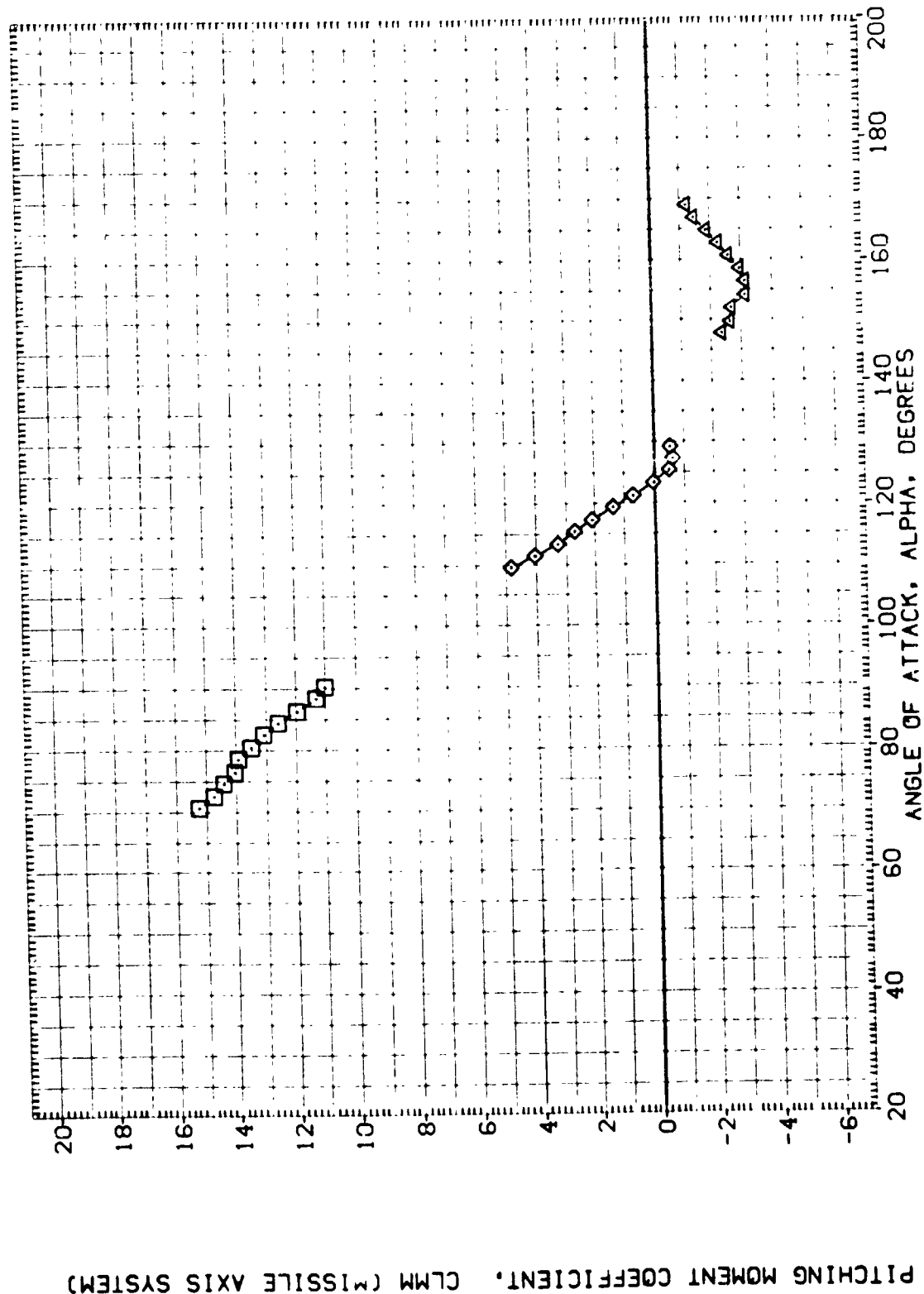


FIGURE 22. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 135)

(O)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .5030 IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

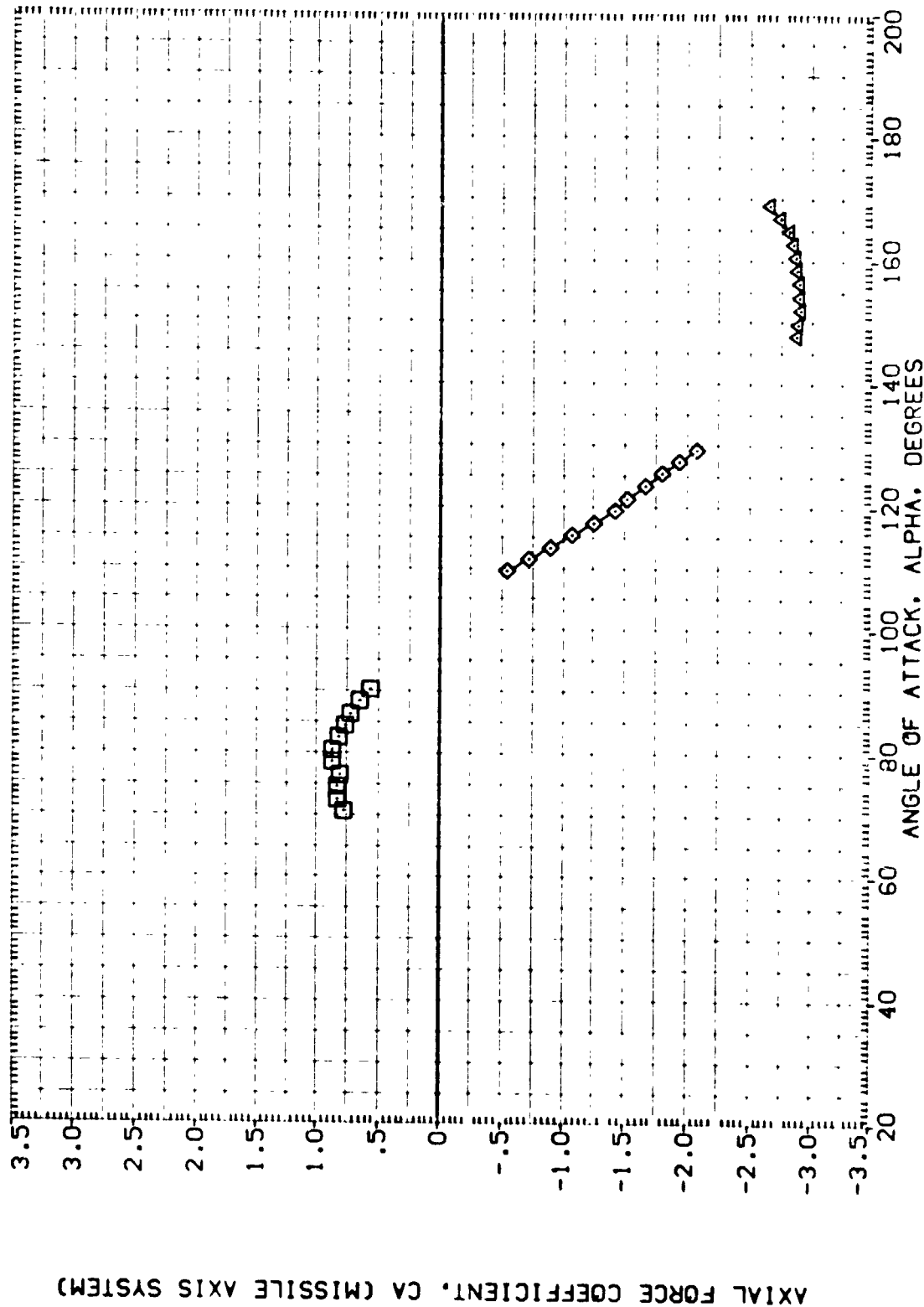


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)



DATA SET SYMBOL: (A1H0405) (A1H0408) (A1H0409) (A1H0450)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES

PHI: 135.000 135.000 135.000

REFERENCE INFORMATION: SREF: .503C .800C .800C LREF: .800C .800C .800C BREF: 5.721C XMRP: .000C .000C .000C YMRP: .000C .000C .000C ZMRP: .005C .005C .005C SCALE: .005C .005C .005C

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

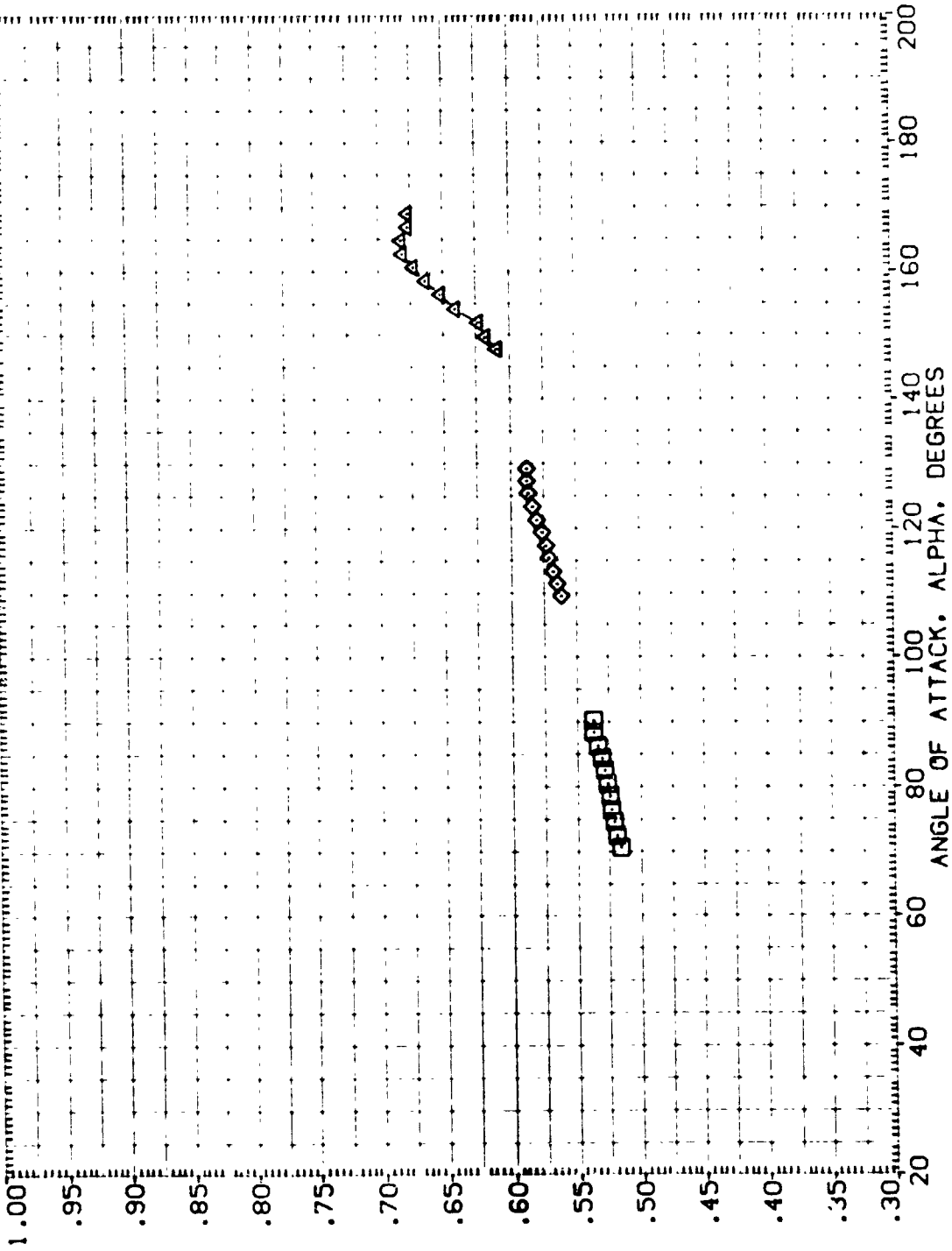


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H006)    DATA NOT AVAILABLE    135.000

(A1H048)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H049)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H050)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

REFERENCE INFORMATION

SREF    .5030    SQ. IN.

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .0055

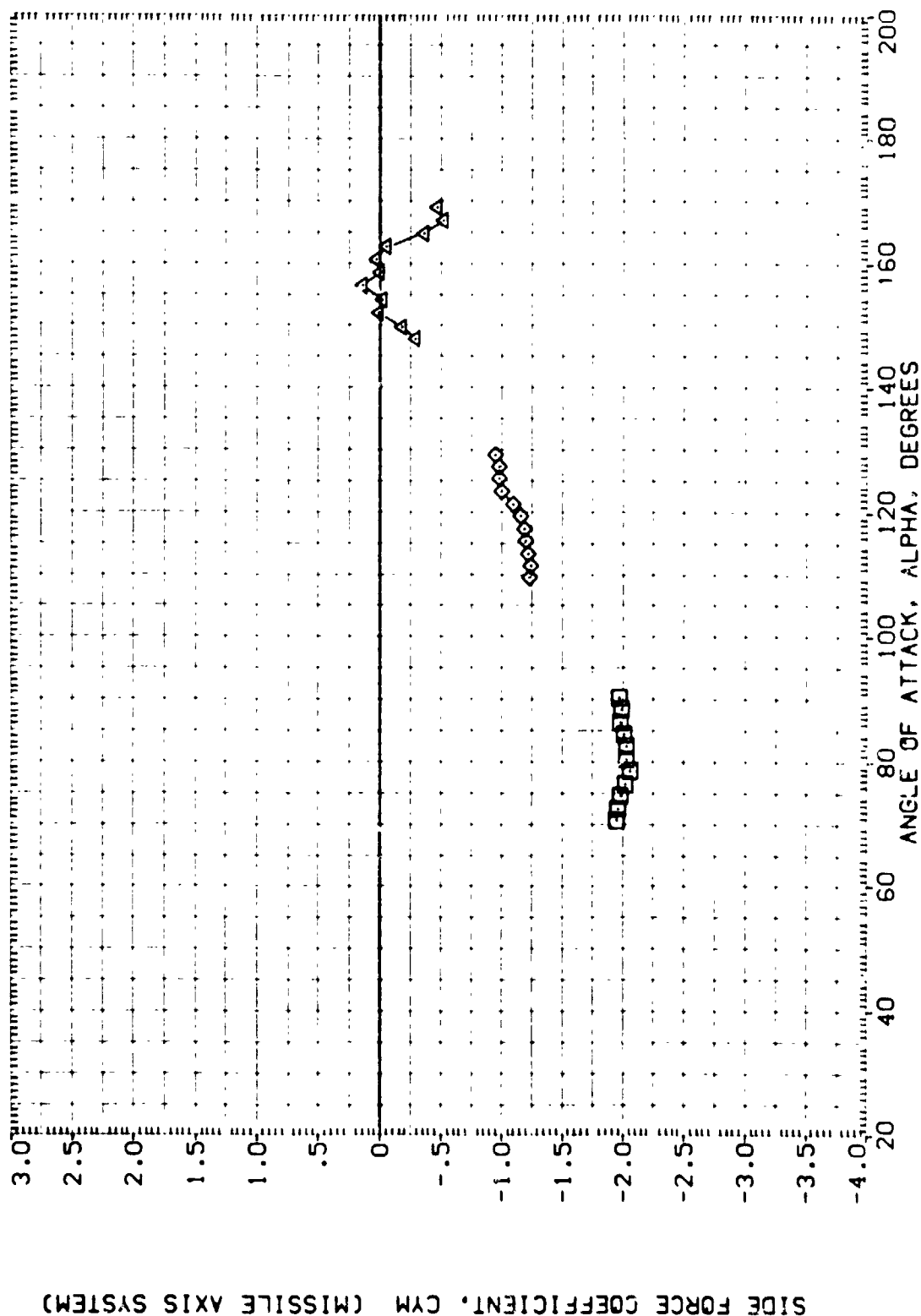


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(D)MACH = 1.20

REFERENCE INFORMATION

SREF	5030	IN.
LREF	8000	IN.
BREF	8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

135.000
135.000
135.000

DATA SET SYMBOL

(A1H005)	DATA NOT AVAILABLE	SRS WITH ALL PROTUBERANCES
(A1H048)	MSFC TVT604 (SABF)	SRS WITH ALL PROTUBERANCES
(A1H049)	MSFC TVT604 (SABF)	SRS WITH ALL PROTUBERANCES
(A1H050)	MSFC TVT604 (SABF)	SRS WITH ALL PROTUBERANCES

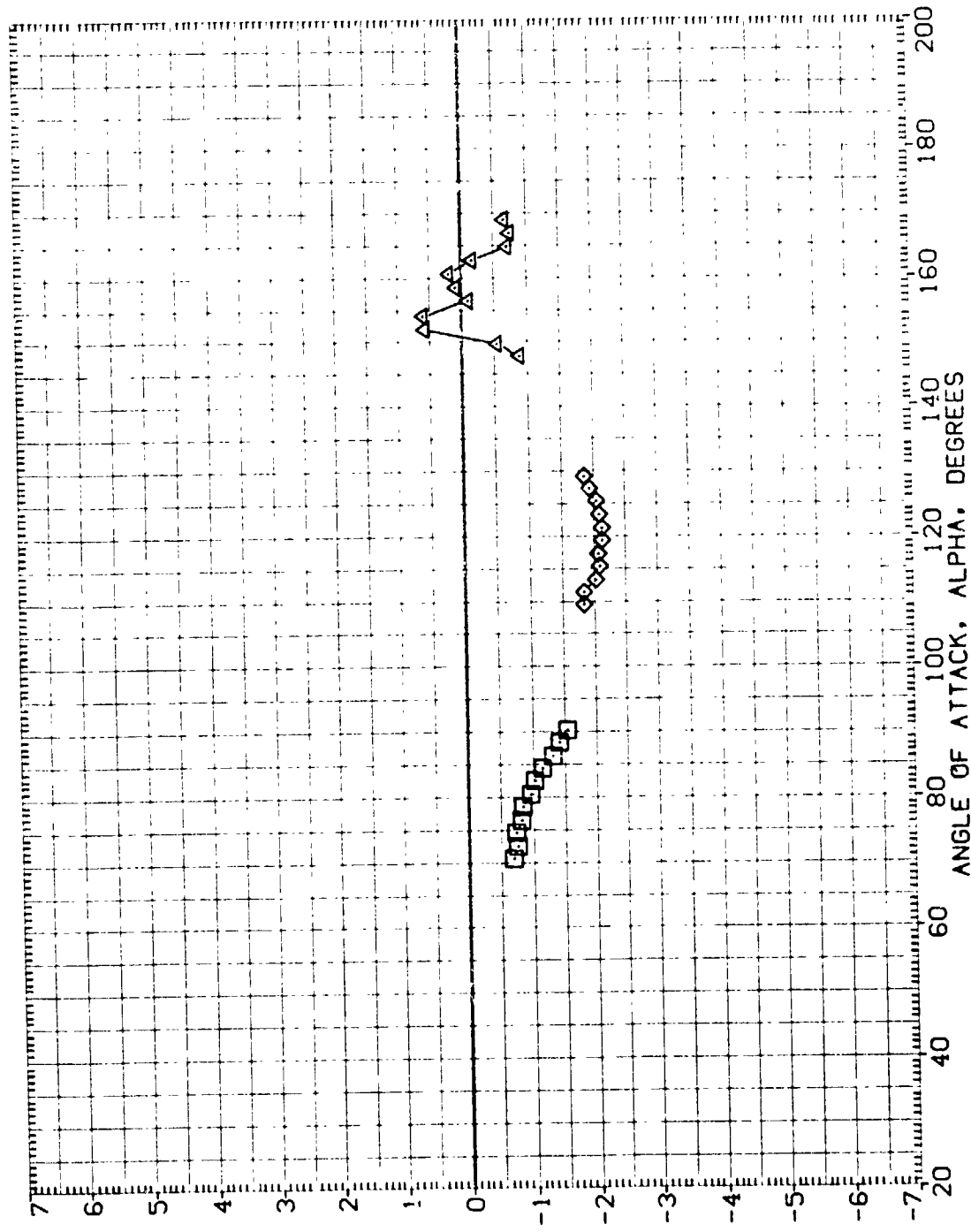


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H006)      DATA NOT AVAILABLE      135.000

(A1H048)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H049)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H050)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

REFERENCE INFORMATION

SREF      .5030      50. IN.

LREF      .8000      IN.

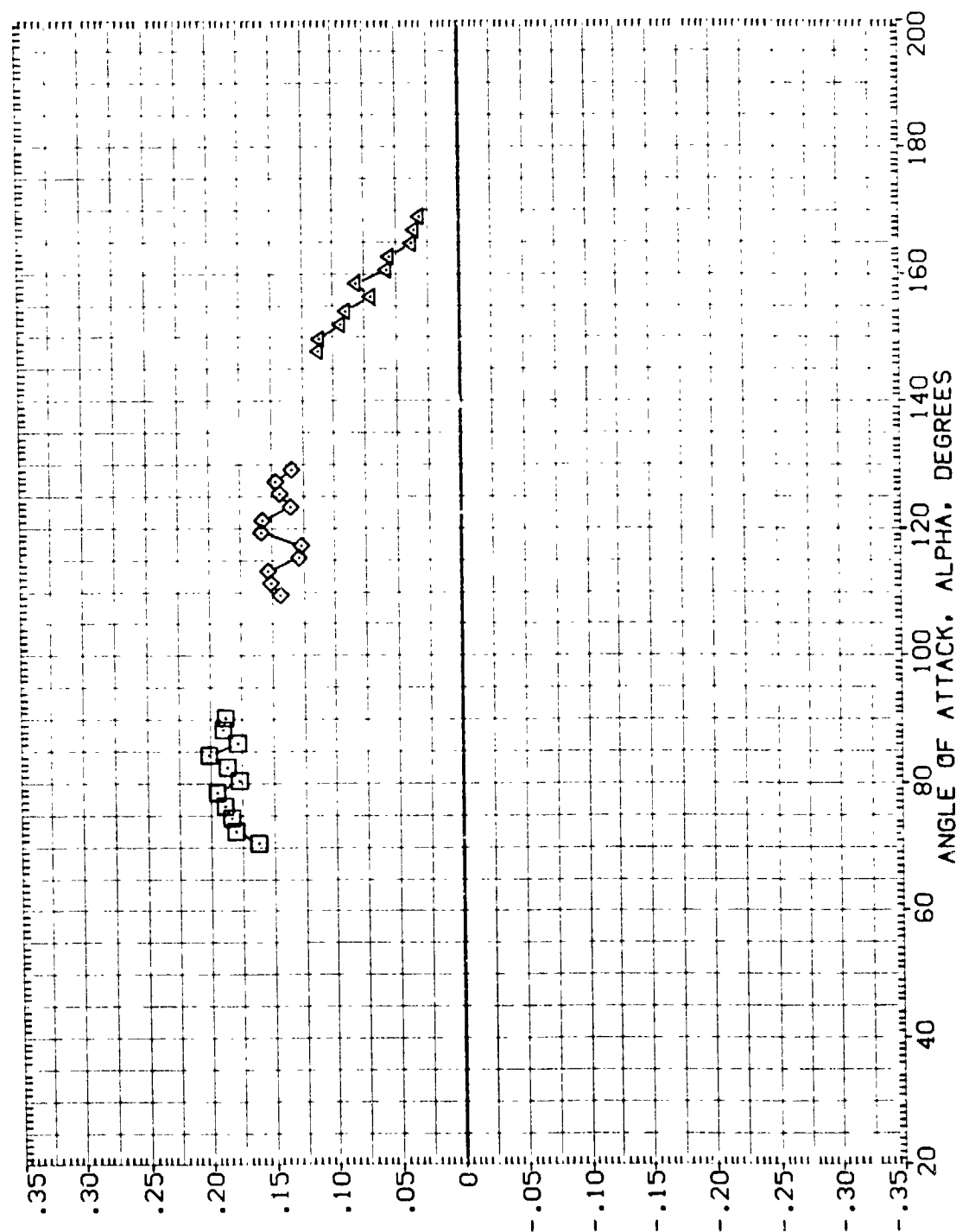
MREF      .8000      IN.

XMRP      5.7210      IN.

YMRP      .0000      IN.

ZMRP      .0000      IN.

SCALE      .0055



ROLLING MOMENT COEFFICIENT, C<sub>l</sub> (MISSILE AXIS SYSTEM)

FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(O)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	135.000	SREF .5030 IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

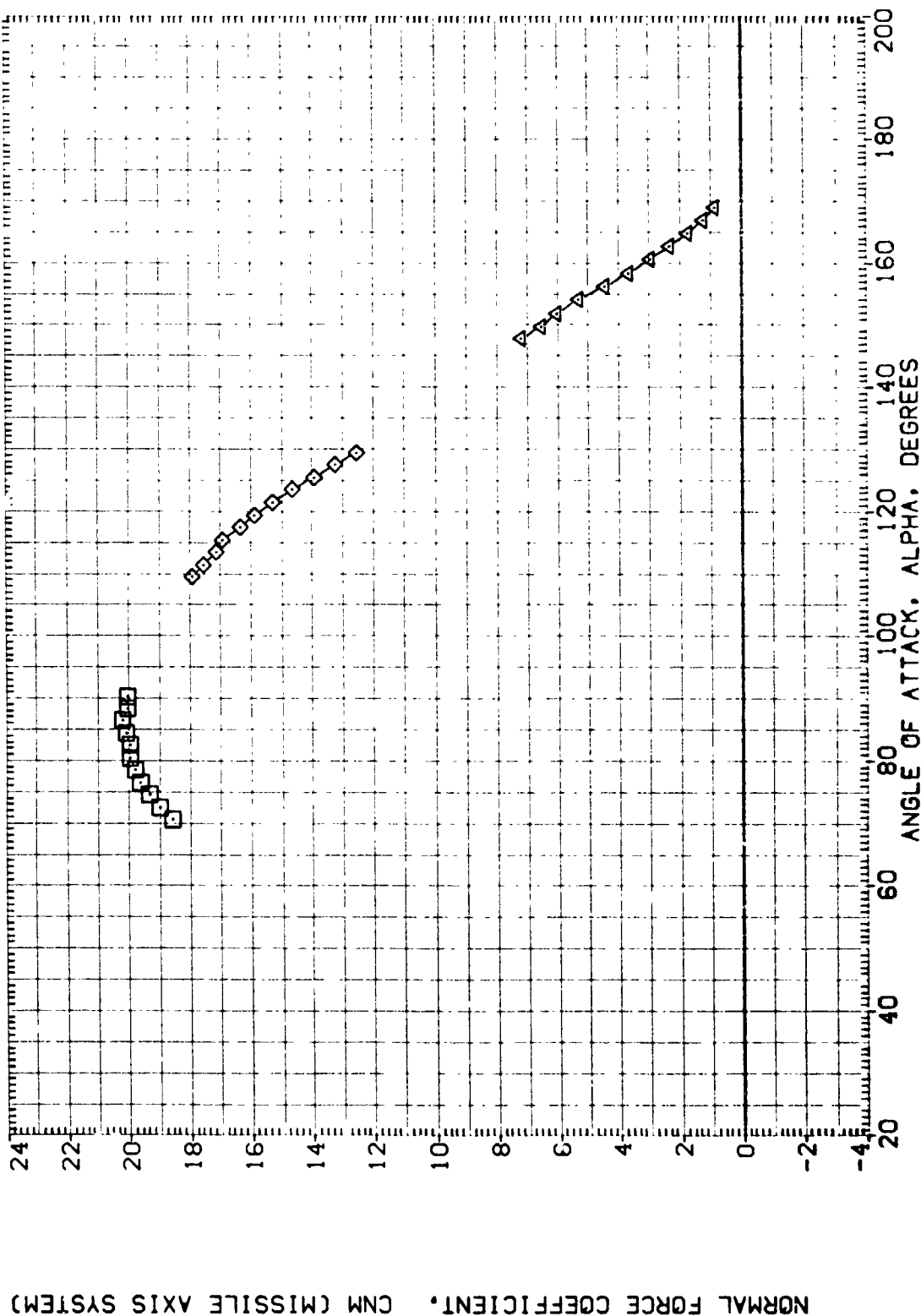


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(AIH048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(AIH049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

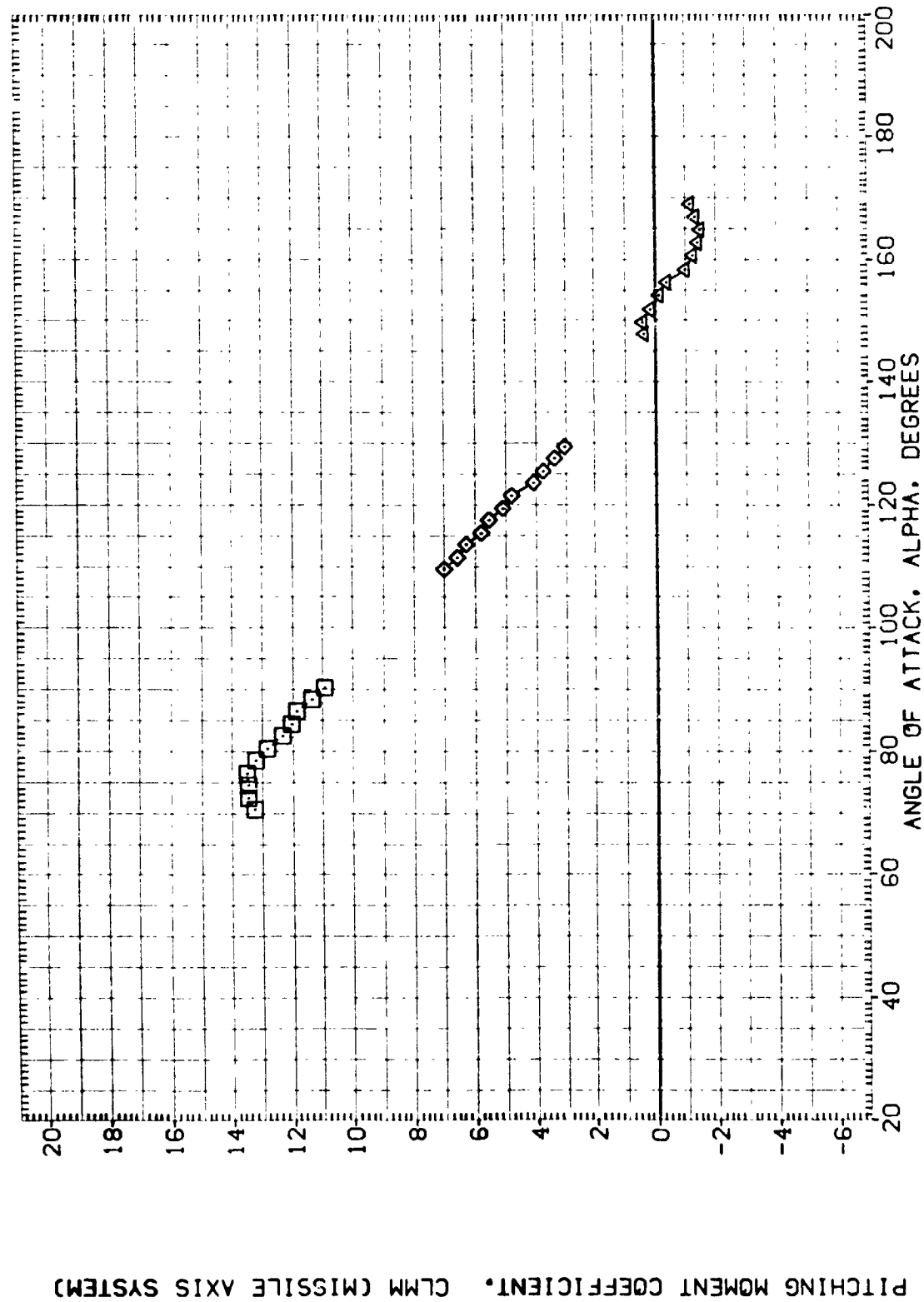


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

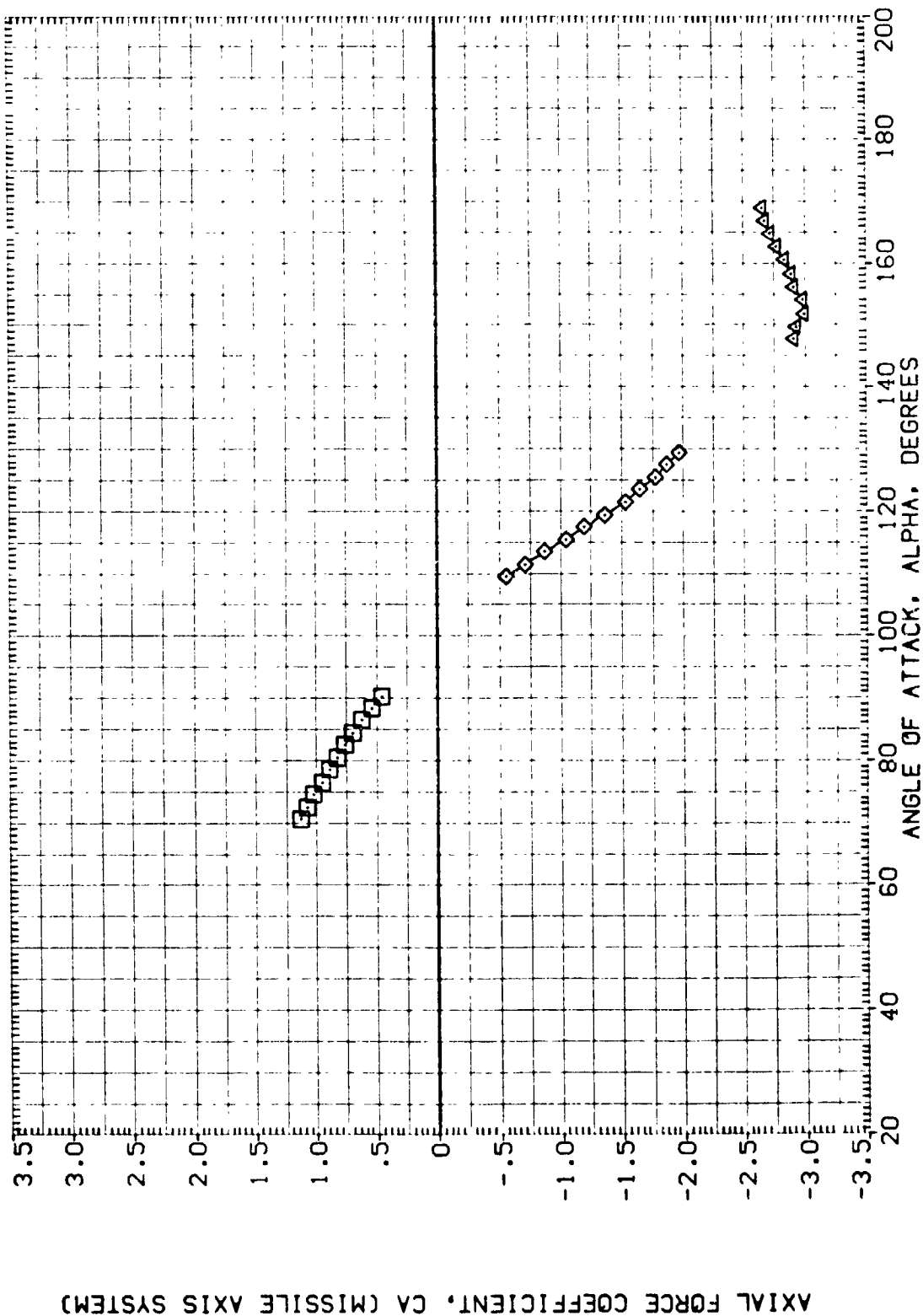


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(E)MACH = 1.96





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .503C SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

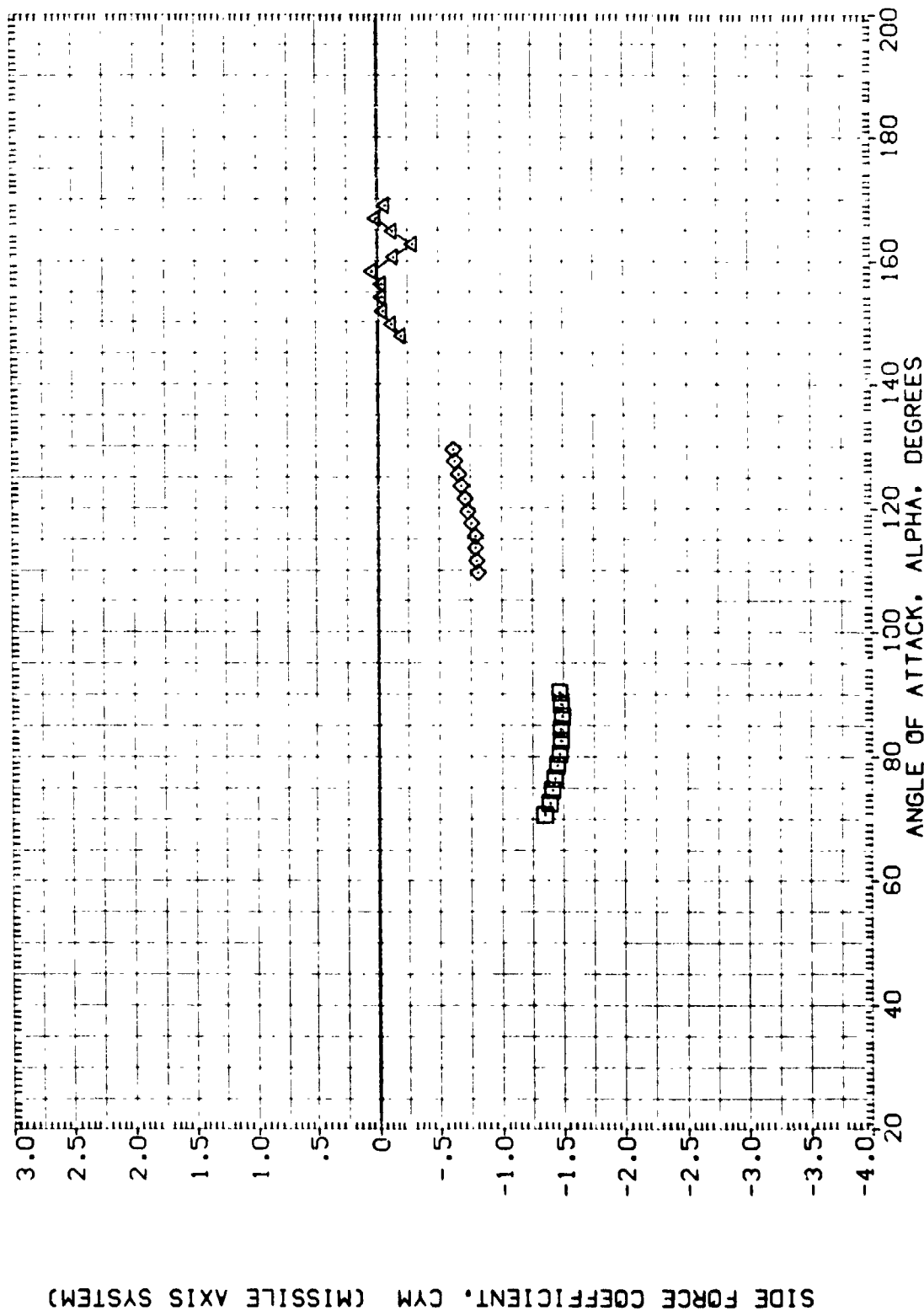


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(AIH048)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(AIH049)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(AIH050)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	135.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

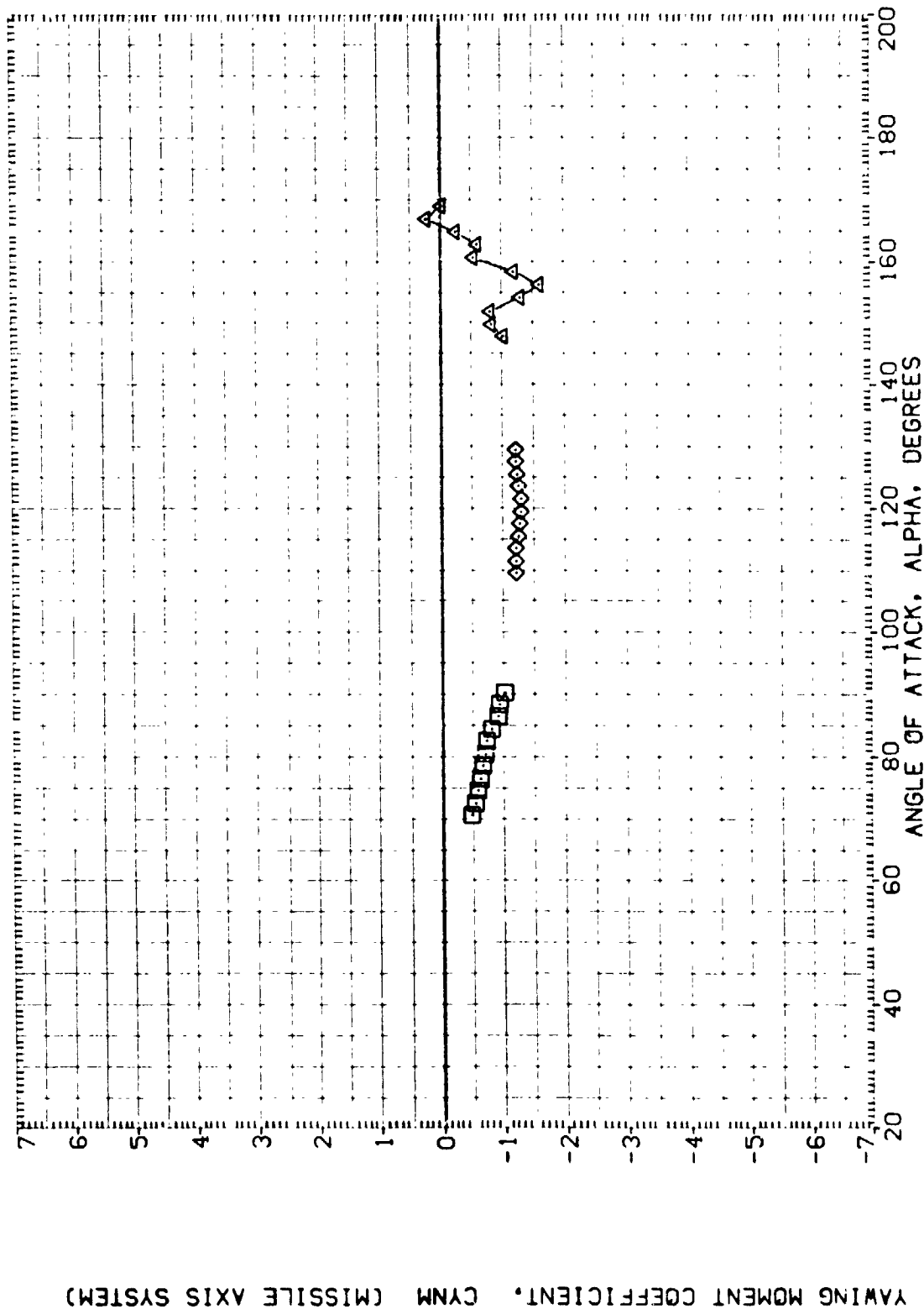


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(E)MACH = 1.96

DATA SET SYMBOL  
(A1H005)  
(A1H048)  
(A1H049)  
(A1H050)

CONFIGURATION DESCRIPTION  
DATA NOT AVAILABLE  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TVT304 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
135.000  
135.000  
135.000  
135.000

REFERENCE INFORMATION  
SREF .5030 SQ. IN.  
LREF .8000 IN.  
BREF .8000 IN.  
XMRP 5.7210 IN. XS  
YMRP .0000 IN. YS  
ZMRP .0000 IN. ZS  
SCALE .0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

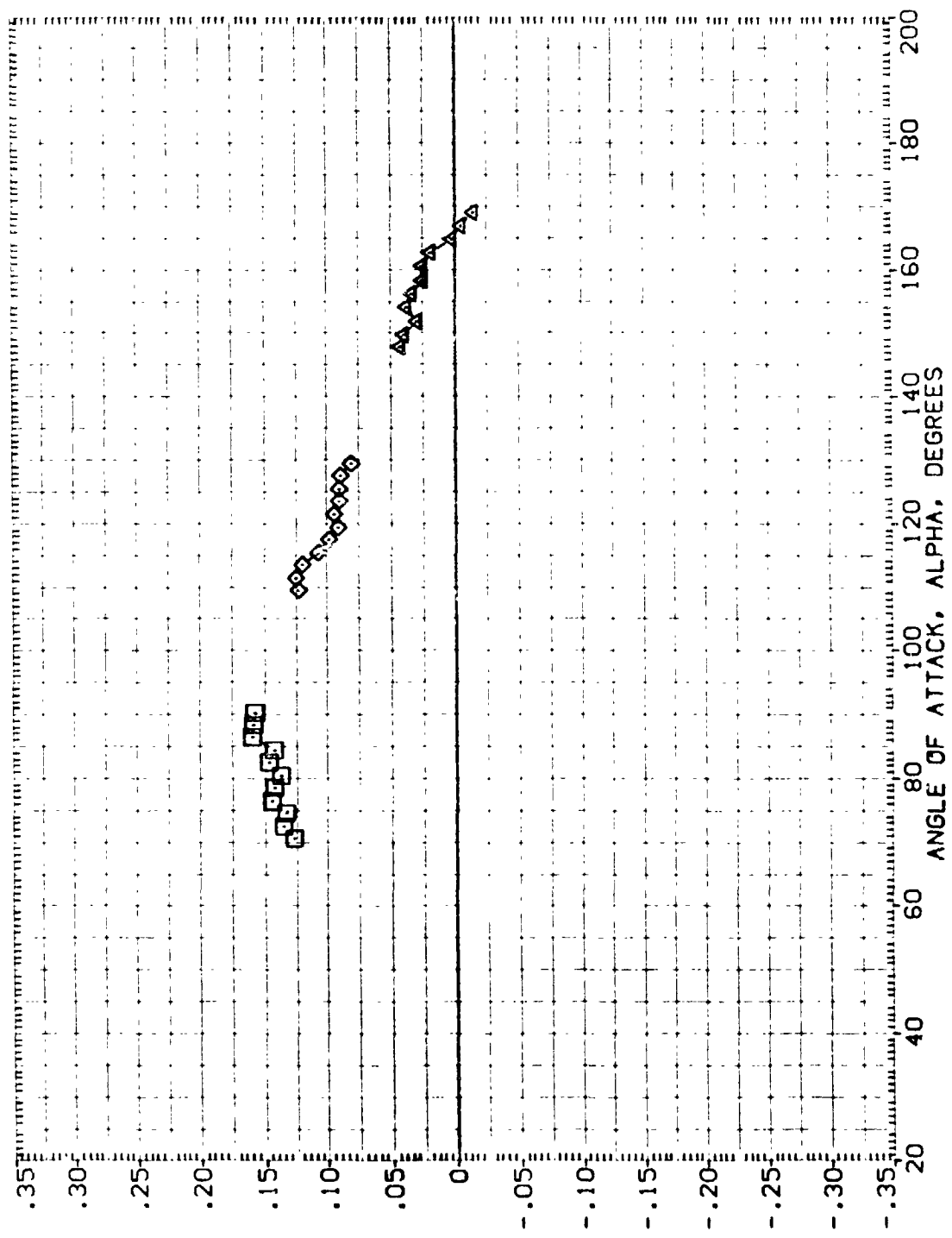


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(E)MACH = 1.96

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H006)      DATA NOT AVAILABLE      135.000

(A1H048)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H049)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H050)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

REFERENCE INFORMATION

SREF      .5030      SC. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN. XS

YMRP      .0000      IN. YS

ZMRP      .0000      IN. ZS

SCALE      .0055

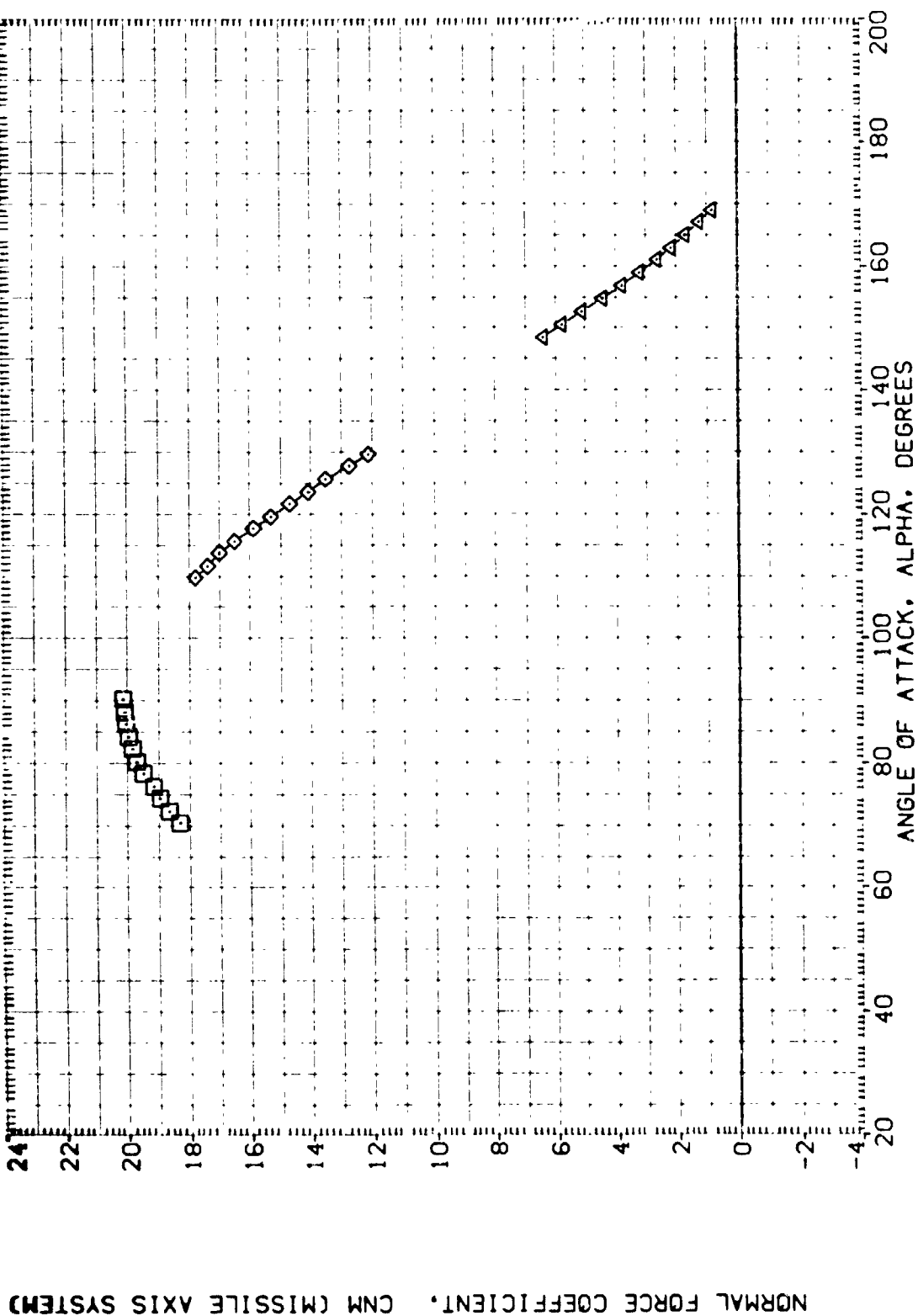


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(F<sub>1</sub> MACH = 2.74)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(AIH045)    DATA NOT AVAILABLE    135.000

(AIH048)    MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(AIH049)    MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(AIH050)    MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES    135.000

REFERENCE INFORMATION

SREF .5030 SQ.IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.2210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

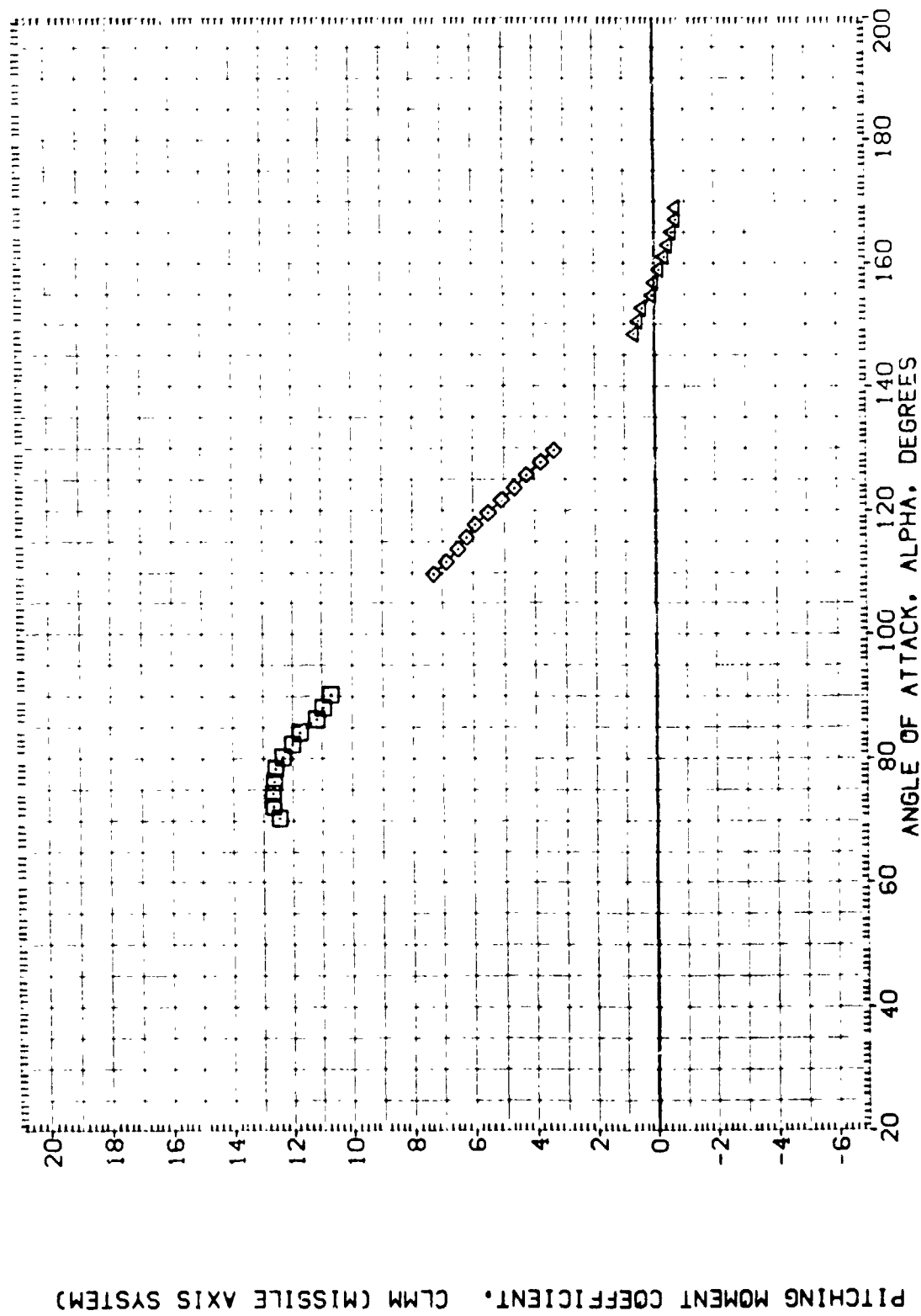


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(F)MACH = 2.74

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H005)    DATA NOT AVAILABLE    135.000

(A1H048)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H049)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

(A1H050)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    135.000

AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

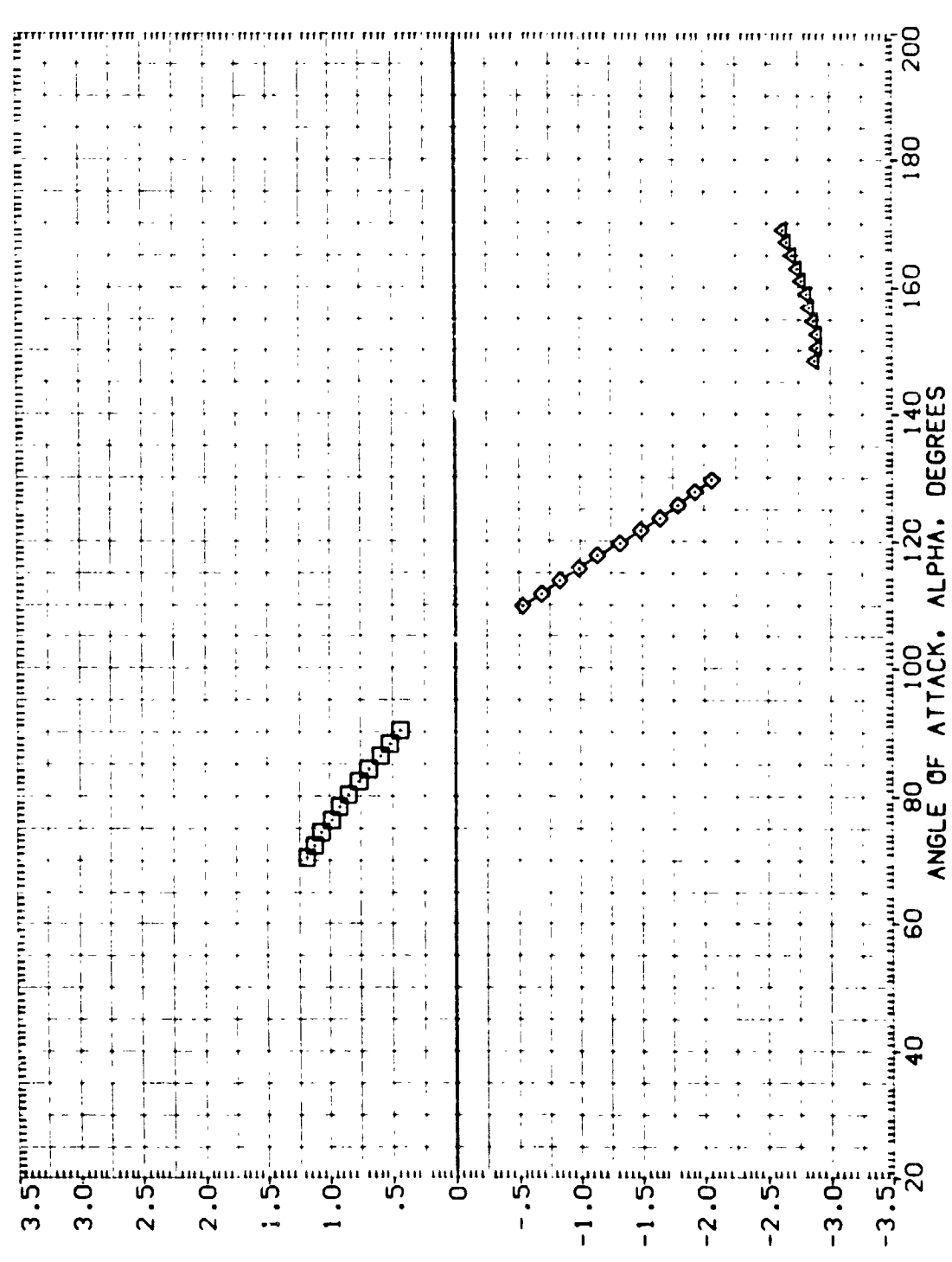


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(F)MACH = 2.74

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H005)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES

(A1H048)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H049)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H050)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION

SREF      5.30      IN.

LREF      .8003      IN.

BREF      .8003      IN.

XMRP      5.7213      IN.

YMRP      .0003      IN.

ZMRP      .0003      IN.

SCALE      .0055

ANGLE OF ATTACK, ALPHA, DEGREES

20      40      60      80      100      120      140      160      180      200

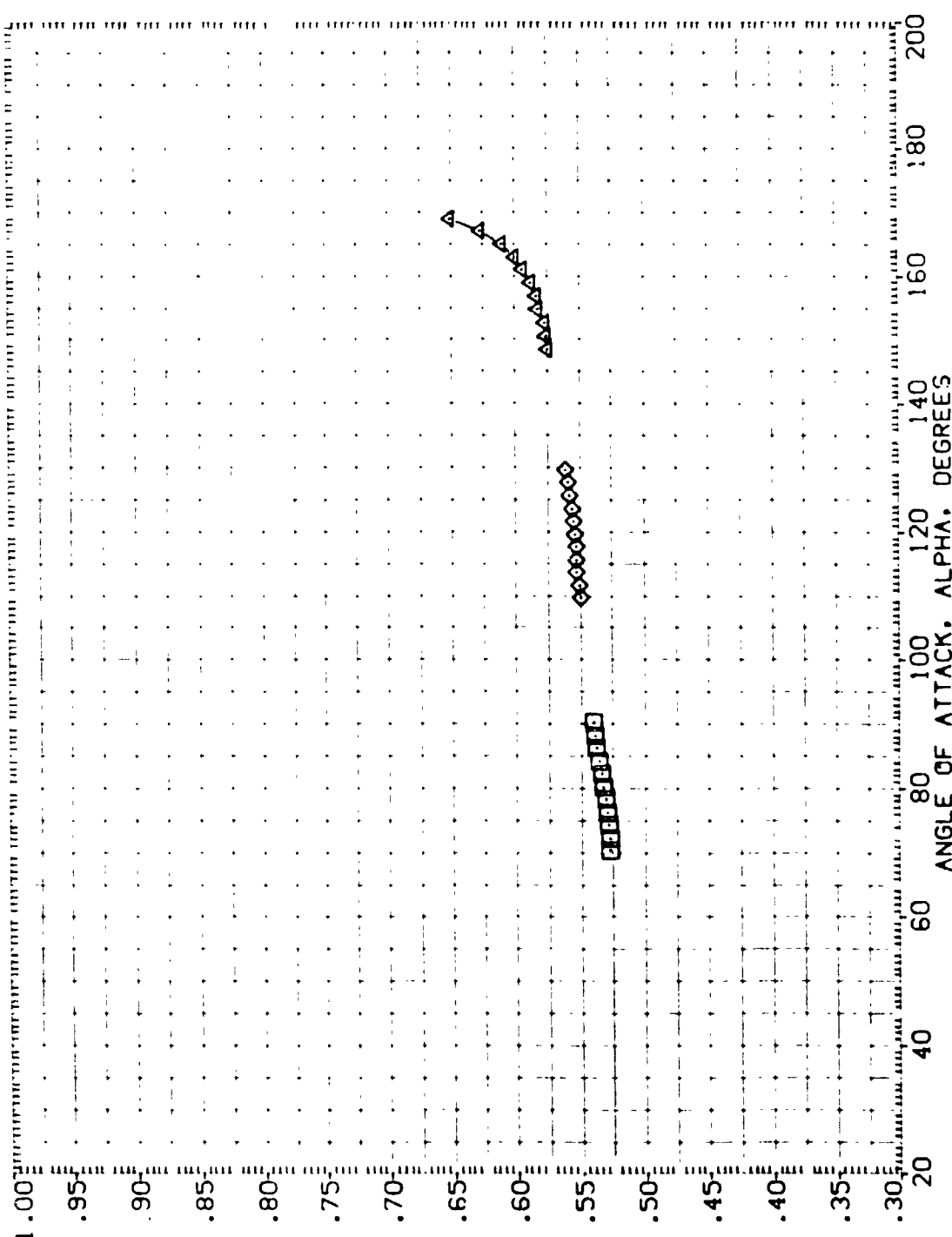


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	XPRP 5.7210 IN. XS
			YPRP .0000 IN. YS
			ZPRP .0000 IN. ZS
			SCALE .0055

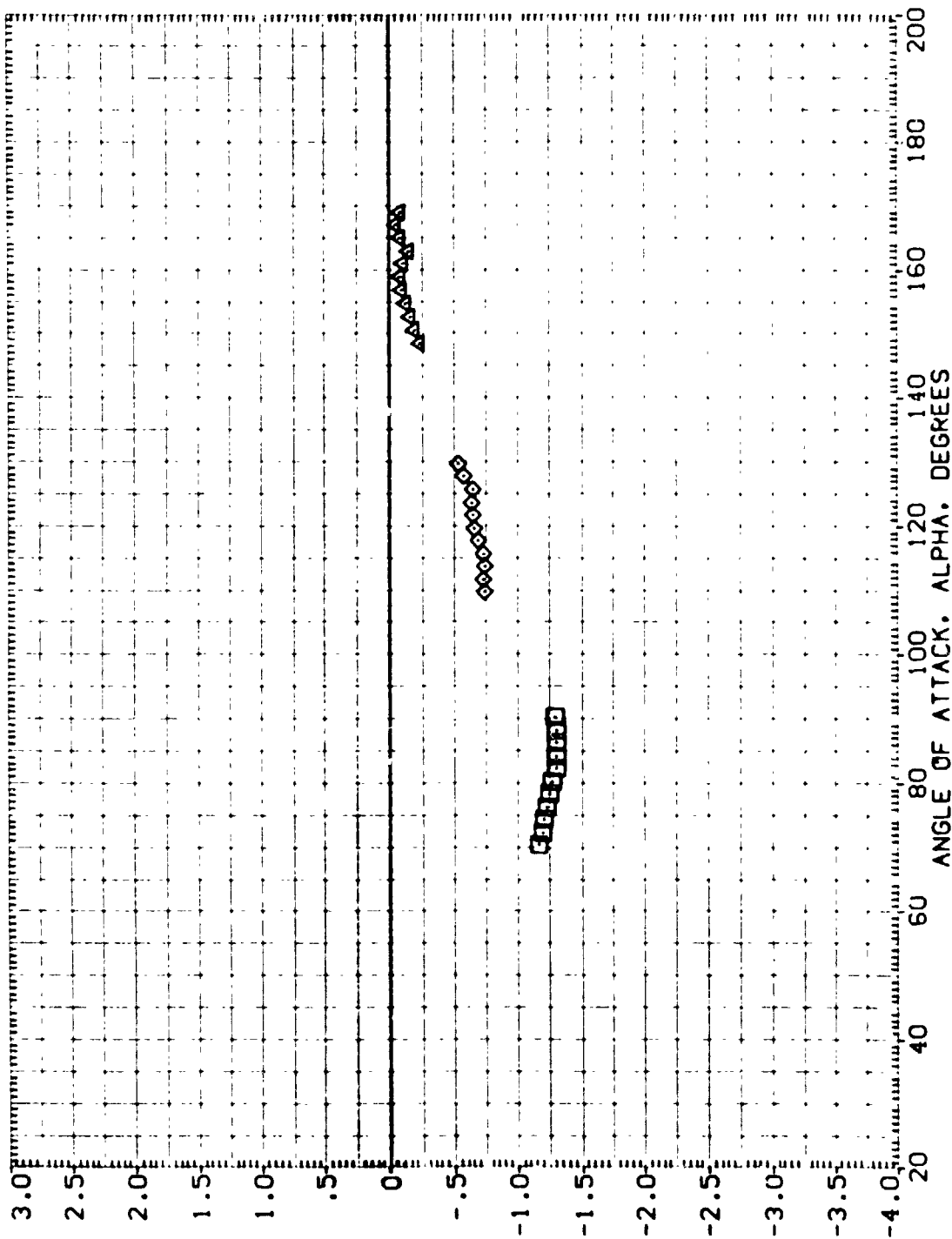


FIGURE 22. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 135)

(F)MACH = 2.74



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIH048)      DATA NOT AVAILABLE      135.000

(AIH048)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(AIH048)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(AIH050)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

REFERENCE INFORMATION

SREF      50.00      SQ. IN.

LREF      .8000      IN.

SREF      .8000      IN.

VMRP      5.7210      IN. XS

ZMRP      .0000      IN. YS

SCALE      .0055      IN. ZS

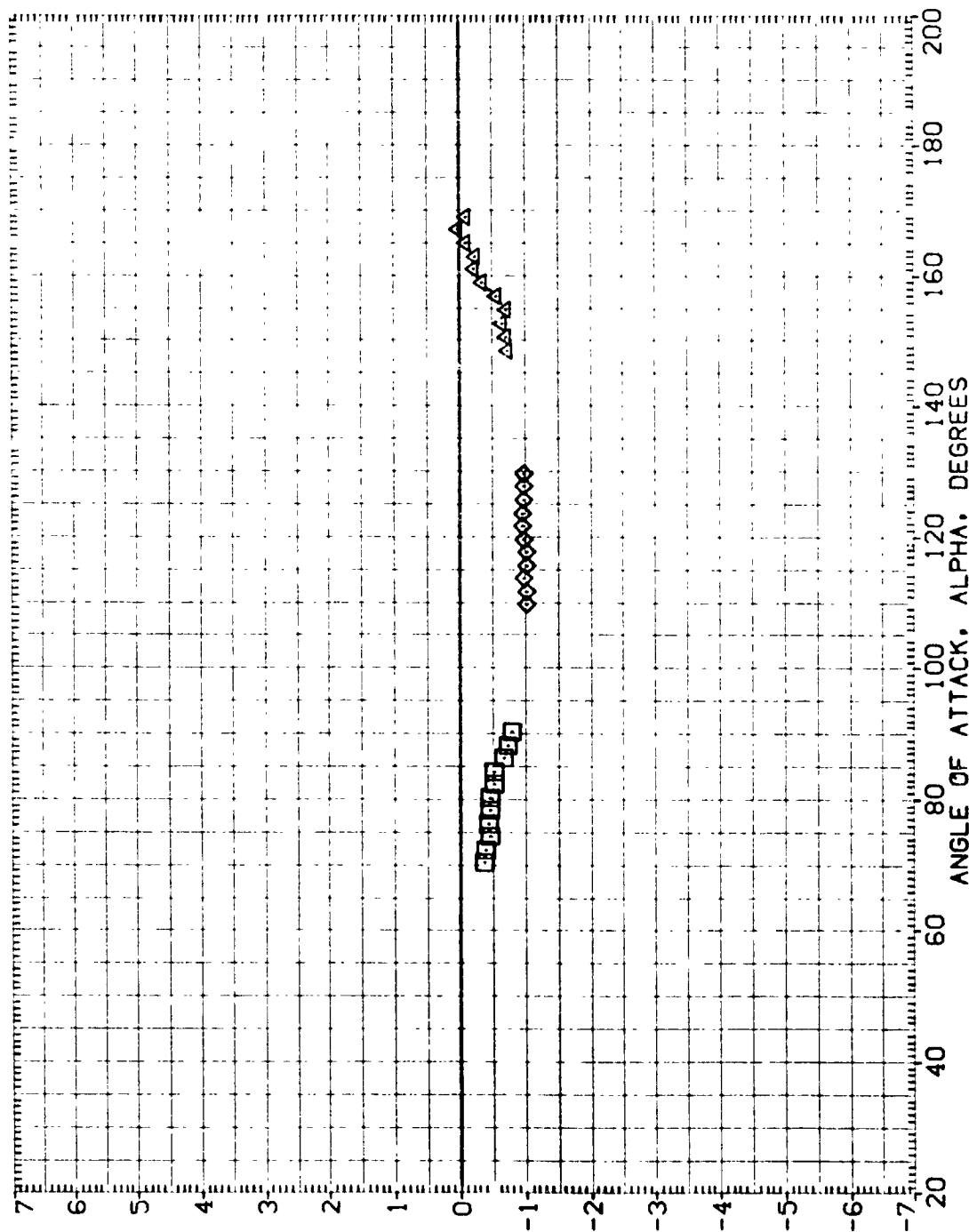


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H036)	DATA NOT AVAILABLE	135.000	SREF .5030 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	EREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. ZS
			SCALE .0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

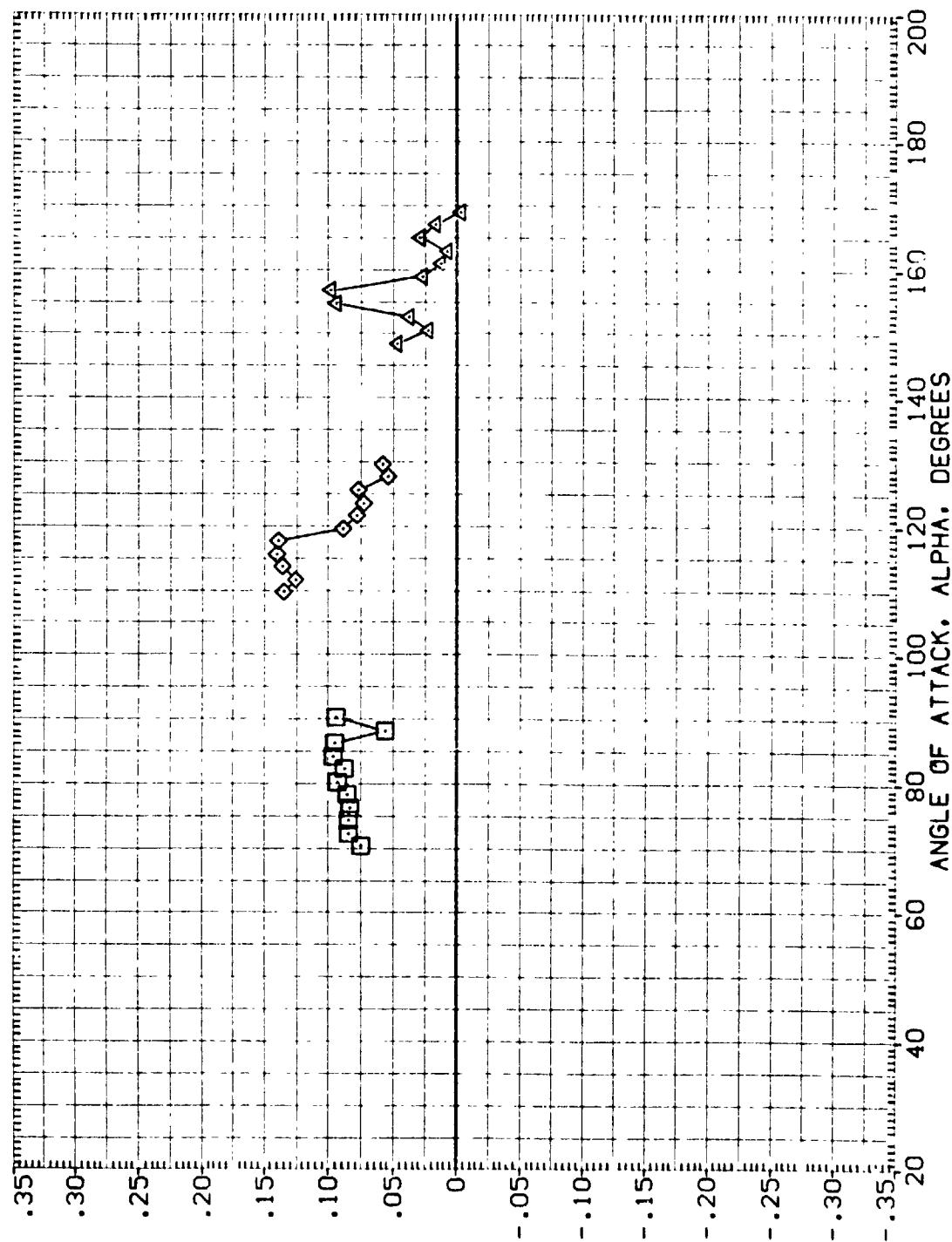


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(C)MACH = 2.74

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
YMRP	5.7210	IN. XS
ZMRP	.0000	IN. YS
SCALE	.0055	IN. ZS

PHI

135.000
135.000
135.000

ALL PROTUBERANCES  
SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL

MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

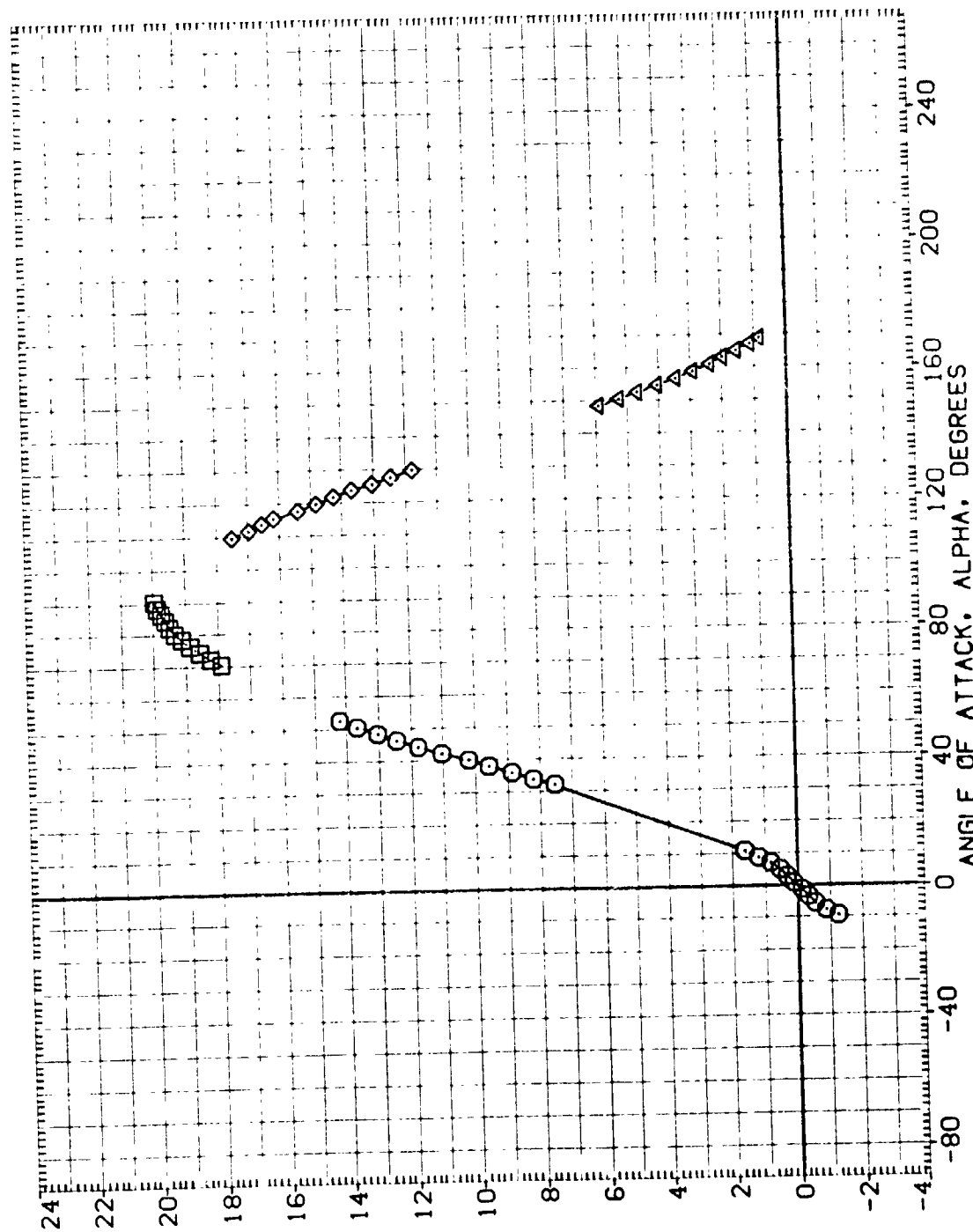


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(MACH = 3.48)

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRF	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

DATA SET SYMBOL

(AIH006)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	PHI	135.000
(AIH048)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES		135.000
(AIH049)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES		135.000
(AIH050)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES		135.000

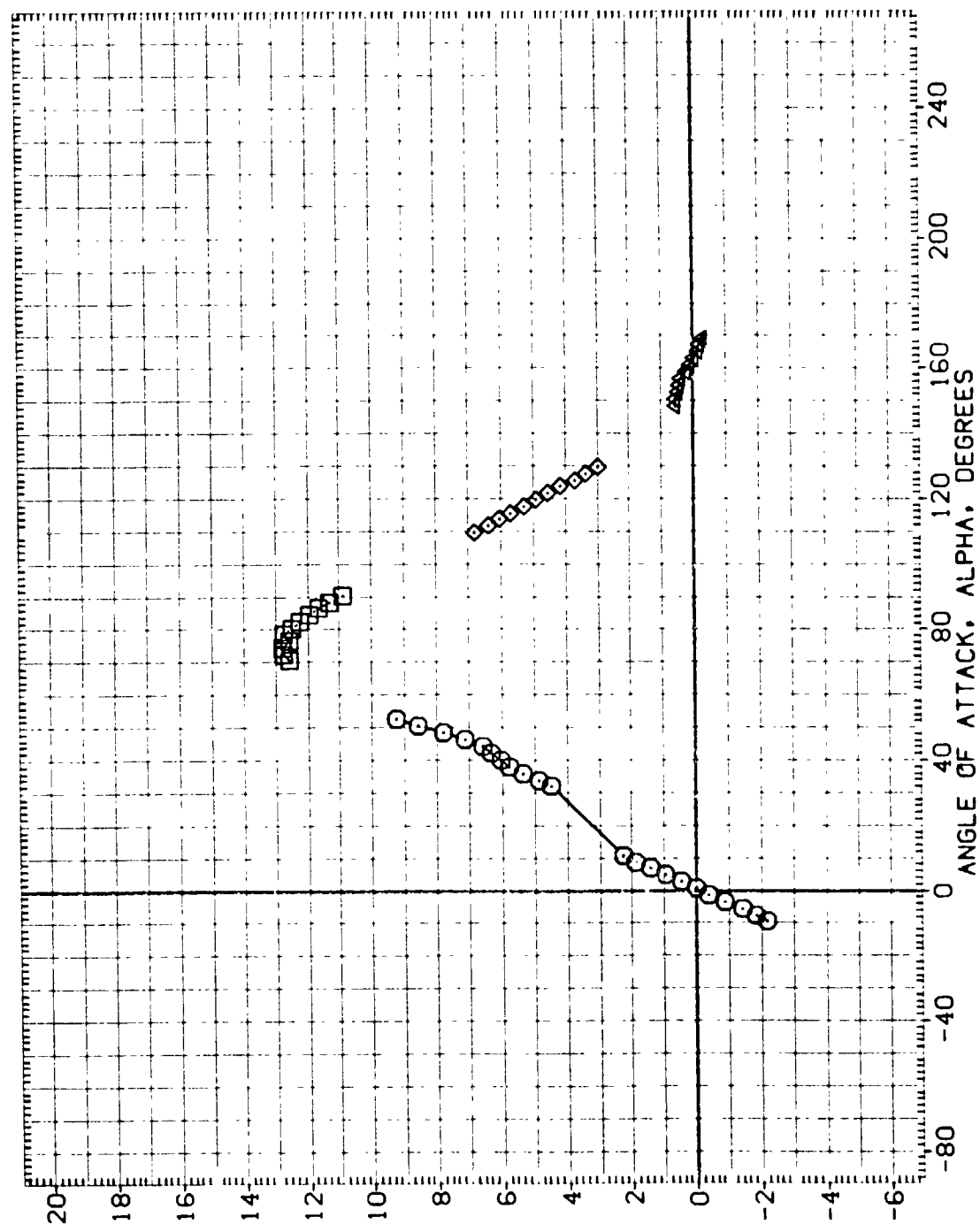


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H406)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	135.000	SREF .5030 SQ. IN.
(A1H408)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H409)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H4050)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

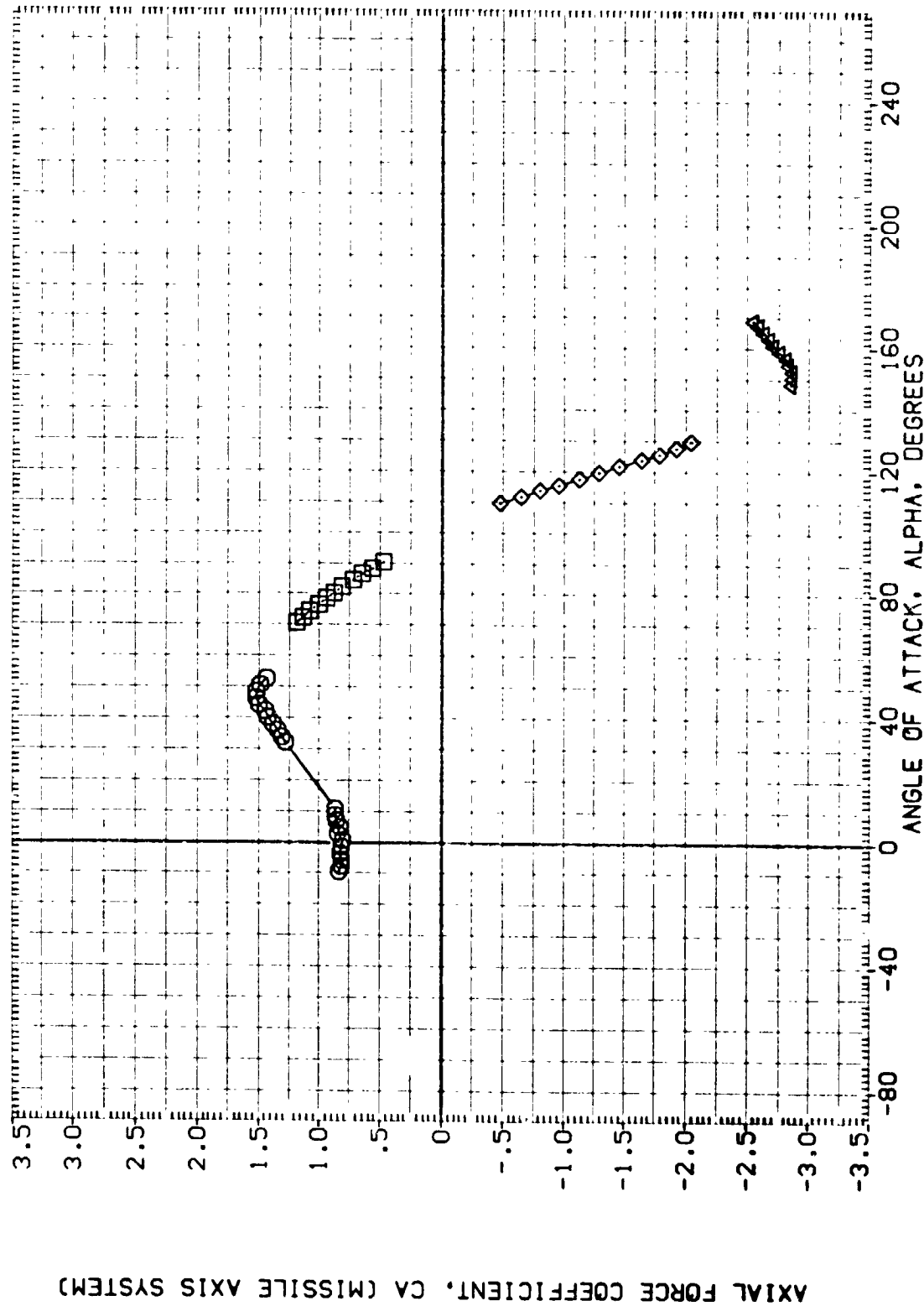


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(AIH006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000
(AIH048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000
(AIH049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000

REFERENCE INFORMATION

SREF	.5030	IN.	50. IN.
LREF	.8000	IN.	
BREF	.6000	IN.	XS
YMRP	5.7210	IN.	YS
ZMRP	.0000	IN.	ZS
SCALE	.0055		

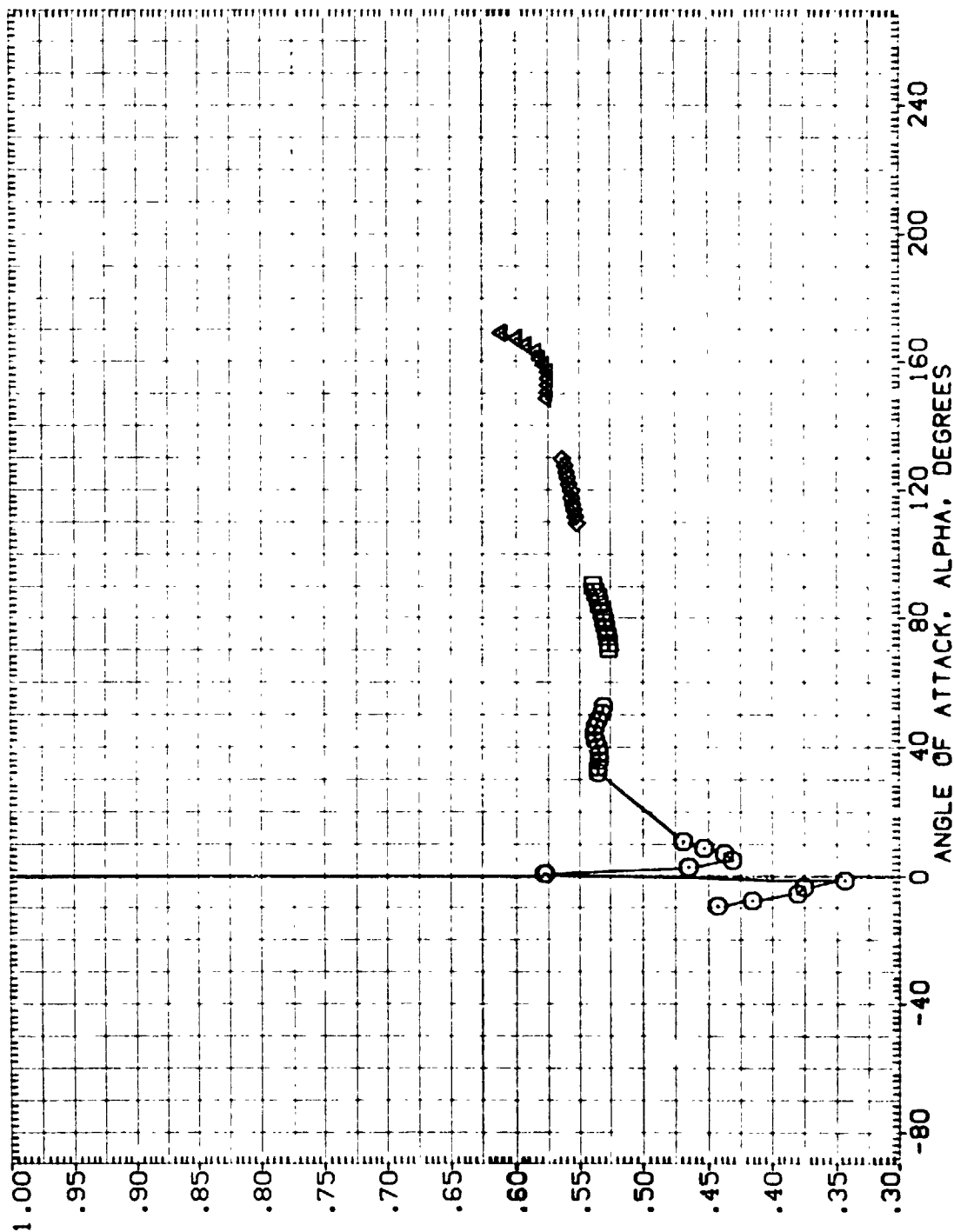


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	SREF .5030 SG.IN.
(AIH048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(AIH049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

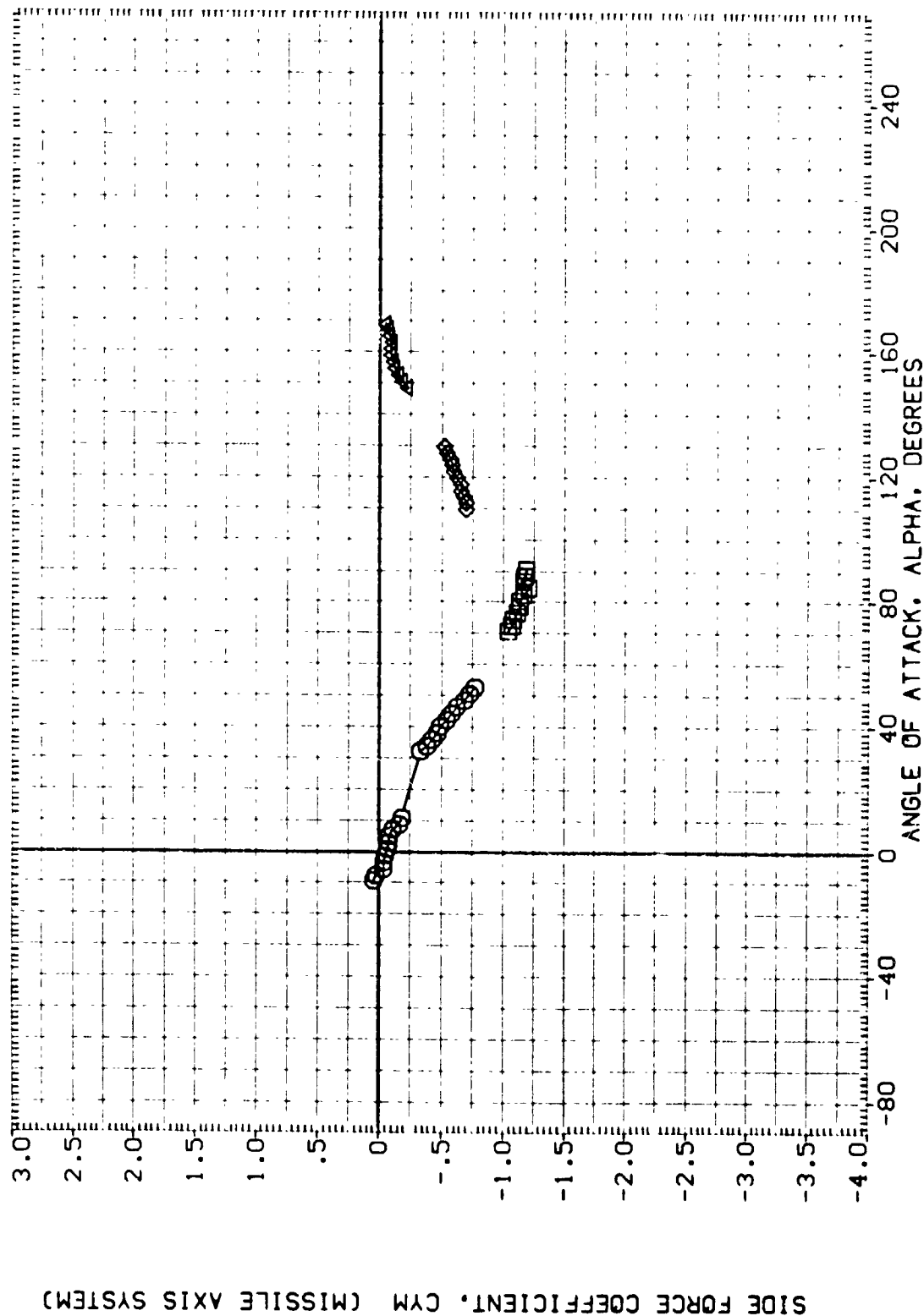


FIGURE 22. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H048)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H049)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

(A1H050)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      135.000

YAWING MOMENT COEFFICIENT, C<sub>YNM</sub> (MISSILE AXIS SYSTEM)

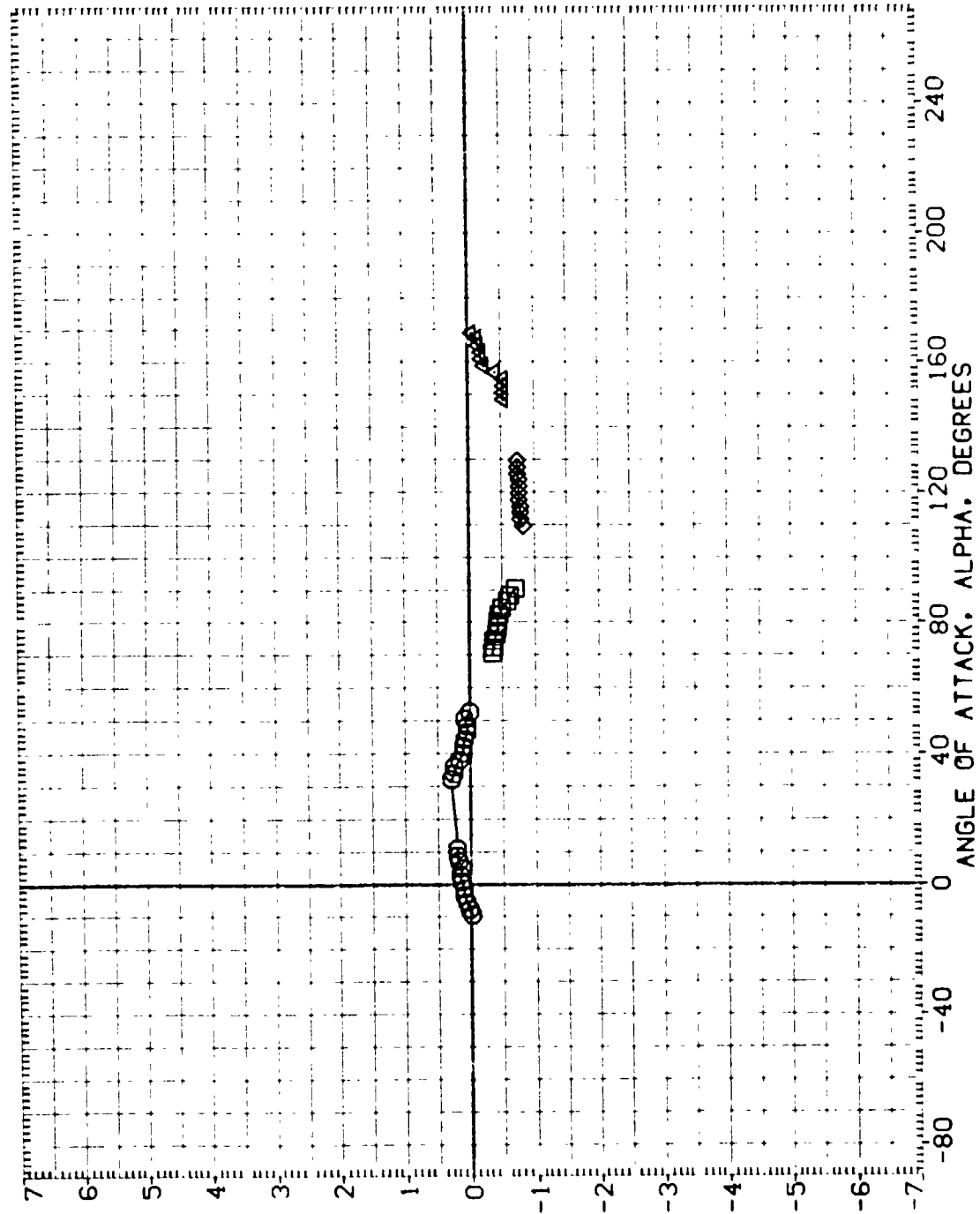


FIGURE 22. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	SREF 50.30 SQ. IN.
(A1H048)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	LREF .8000 IN.
(A1H049)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	BREF .8000 IN.
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	135.000	YMRP 5.7210 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

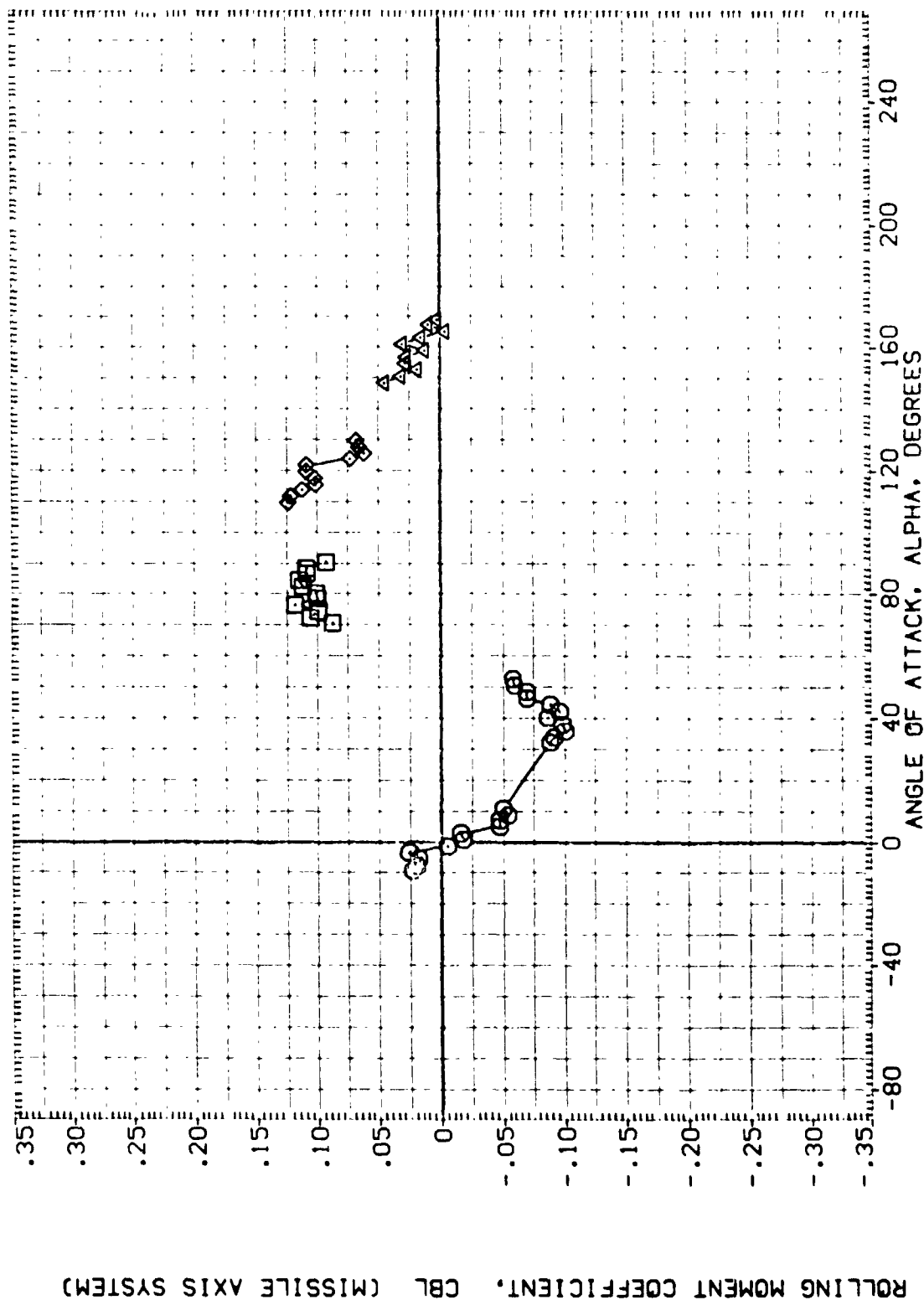


FIGURE 22. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 135)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

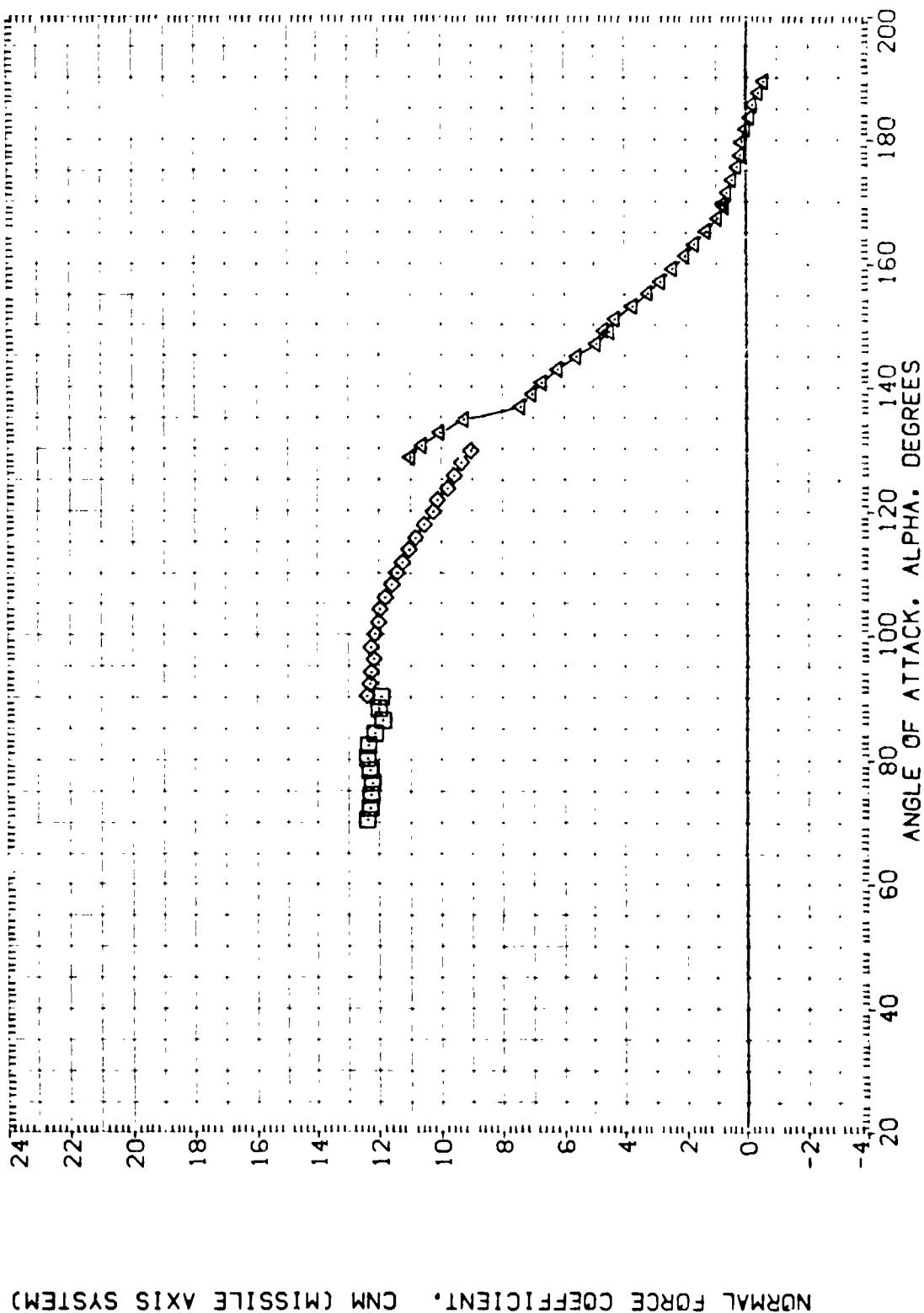


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(A)MACH = .40

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8500	IN.
BREF	.8000	IN.
YMRP	5.7210	IN. XS
ZMRP	.0000	IN. YS
SCALE	.0055	IN. ZS

PHI

180.000
180.000
180.000
180.000

DATA SET SYMBOL

(A1H407)	DATA NOT AVAILABLE
(A1H4054)	SRB WITH ALL PROTUBERANCES
(A1H407)	SRB WITH ALL PROTUBERANCES
(A1H407)	SRB WITH ALL PROTUBERANCES

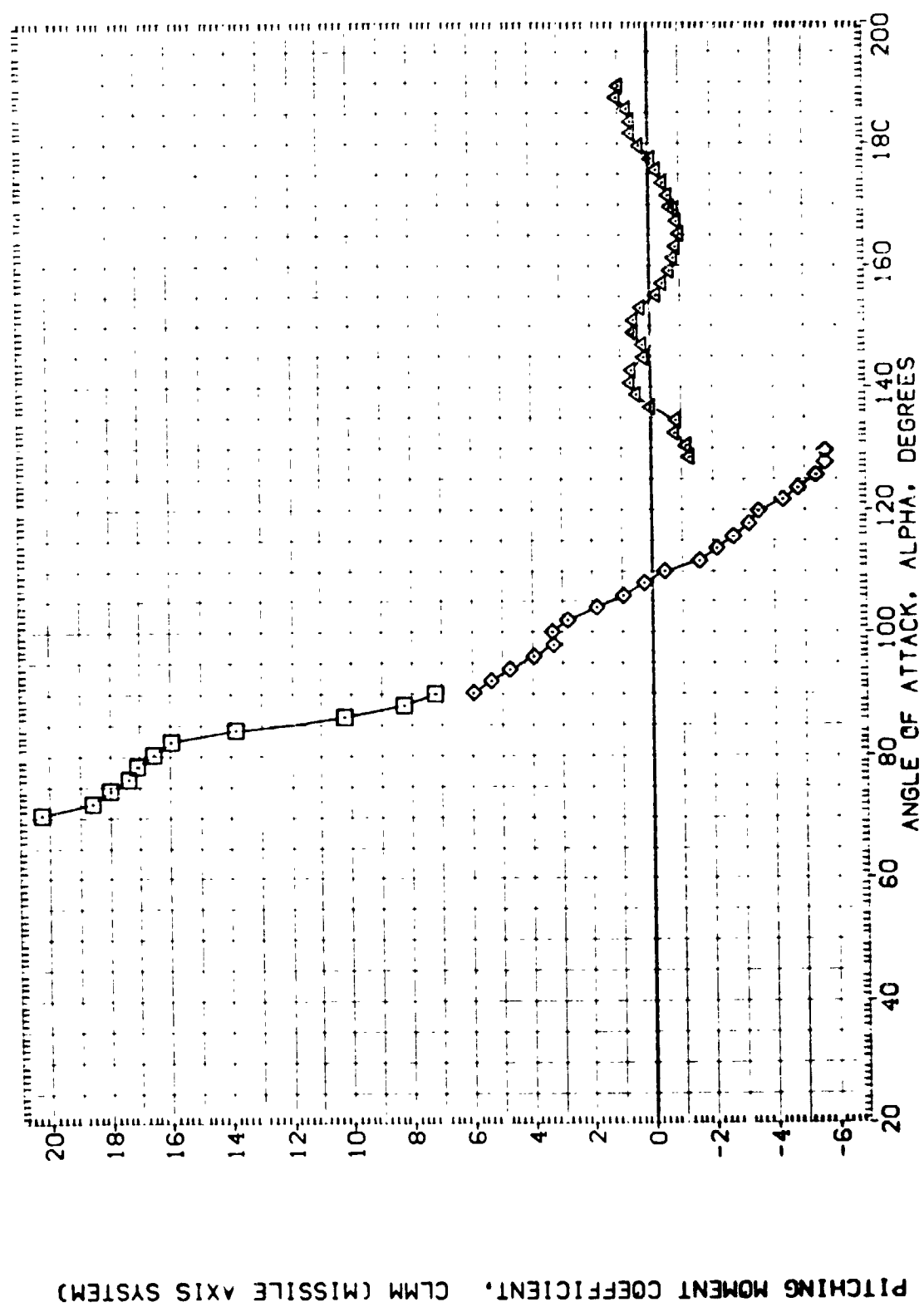
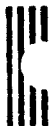


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(A)MACH = .40



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H034)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H037)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

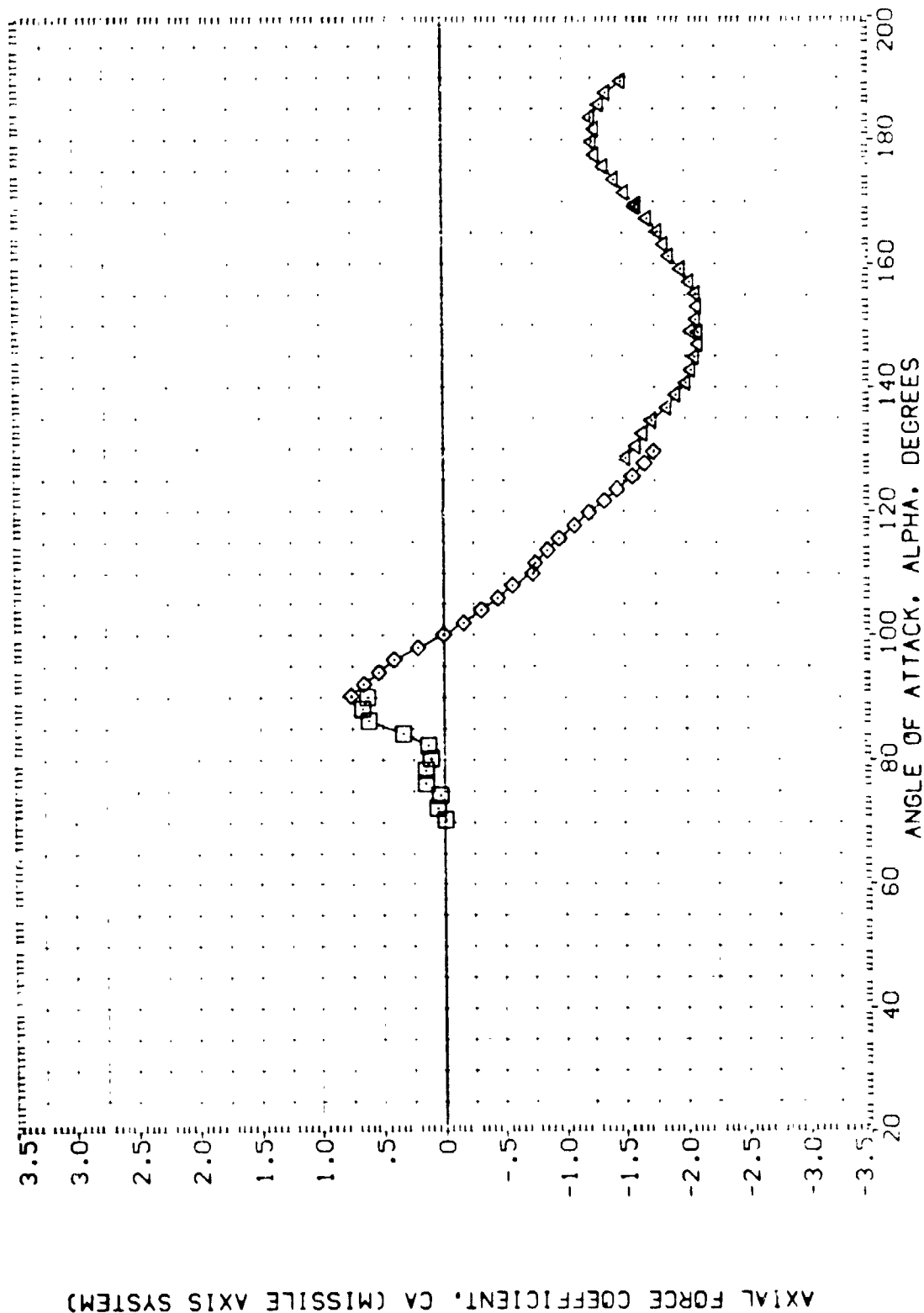


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 180)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A)H007      DATA NOT AVAILABLE      180.000

(A)H054      SRB WITH ALL PROTUBERANCES      180.000

(A)H007      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A)H007      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION

DATE      5-2-60      50 IN

REF      5-2-60      2 IN

EXP      5-2-60      2 IN

YREF      5-2-60      2 IN

YEXP      5-2-60      2 IN

SCALE      30.5

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

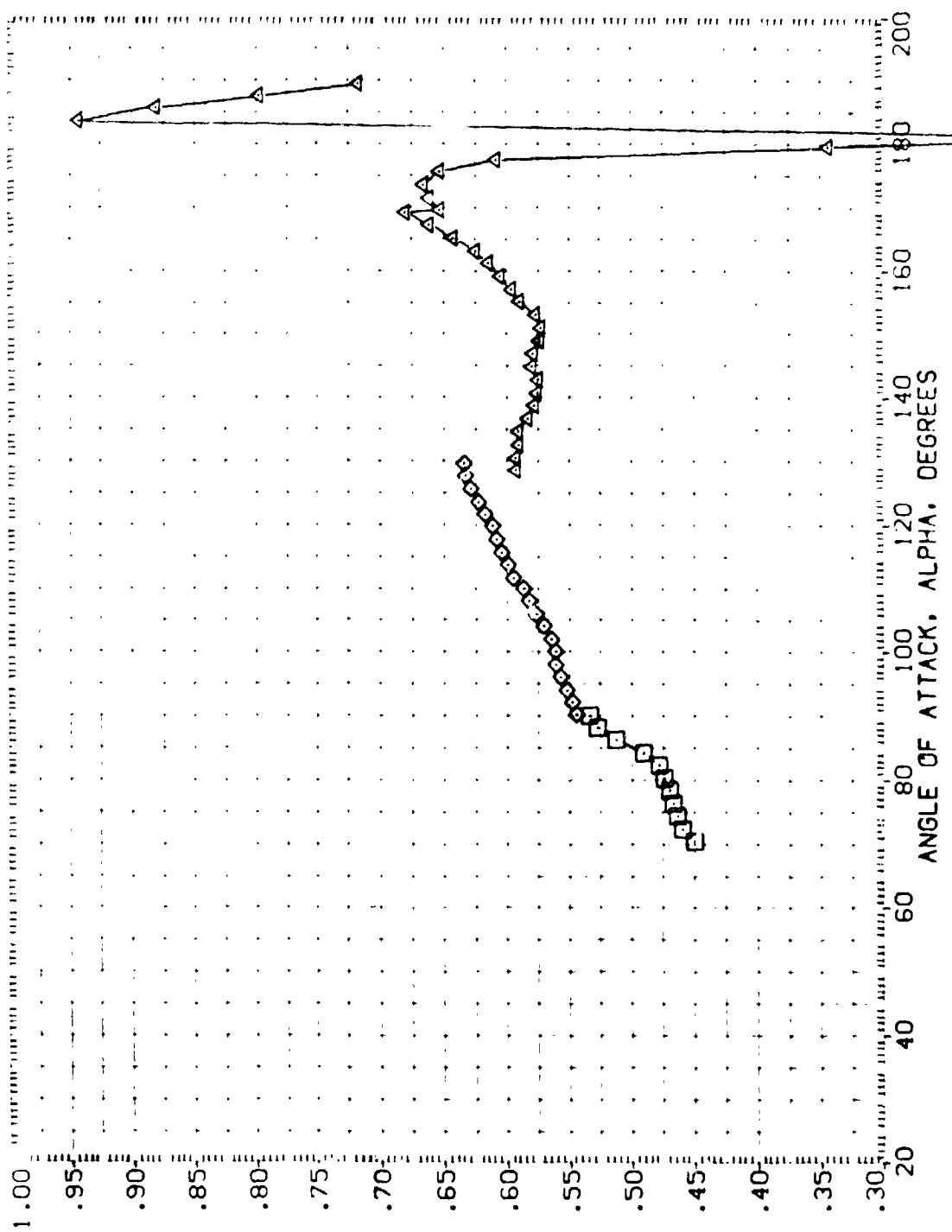


FIGURE 23. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 180)

(A)MACH = .40

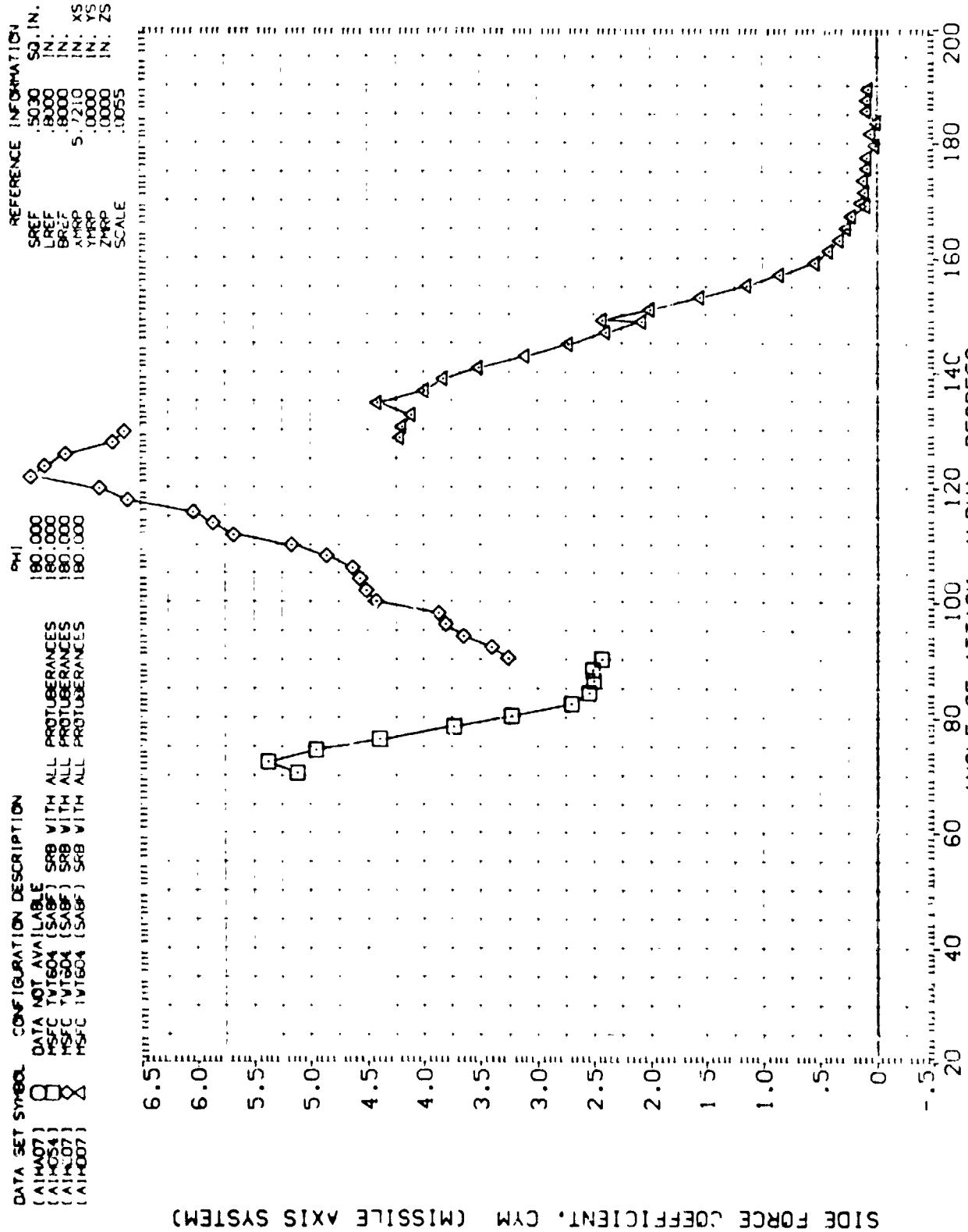


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 130)

(A)MACH = .40

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H007)    DATA NOT AVAILABLE    180.000  
 (A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000  
 (A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000  
 (A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

REFERENCE INFORMATION

SREF    50.30    IN.  
 REF    50.30    IN.  
 BREF    50.30    IN.  
 XIRP    5.0000    IN.  
 YIRP    5.0000    IN.  
 ZIRP    5.0000    IN.  
 SCALE    .0055

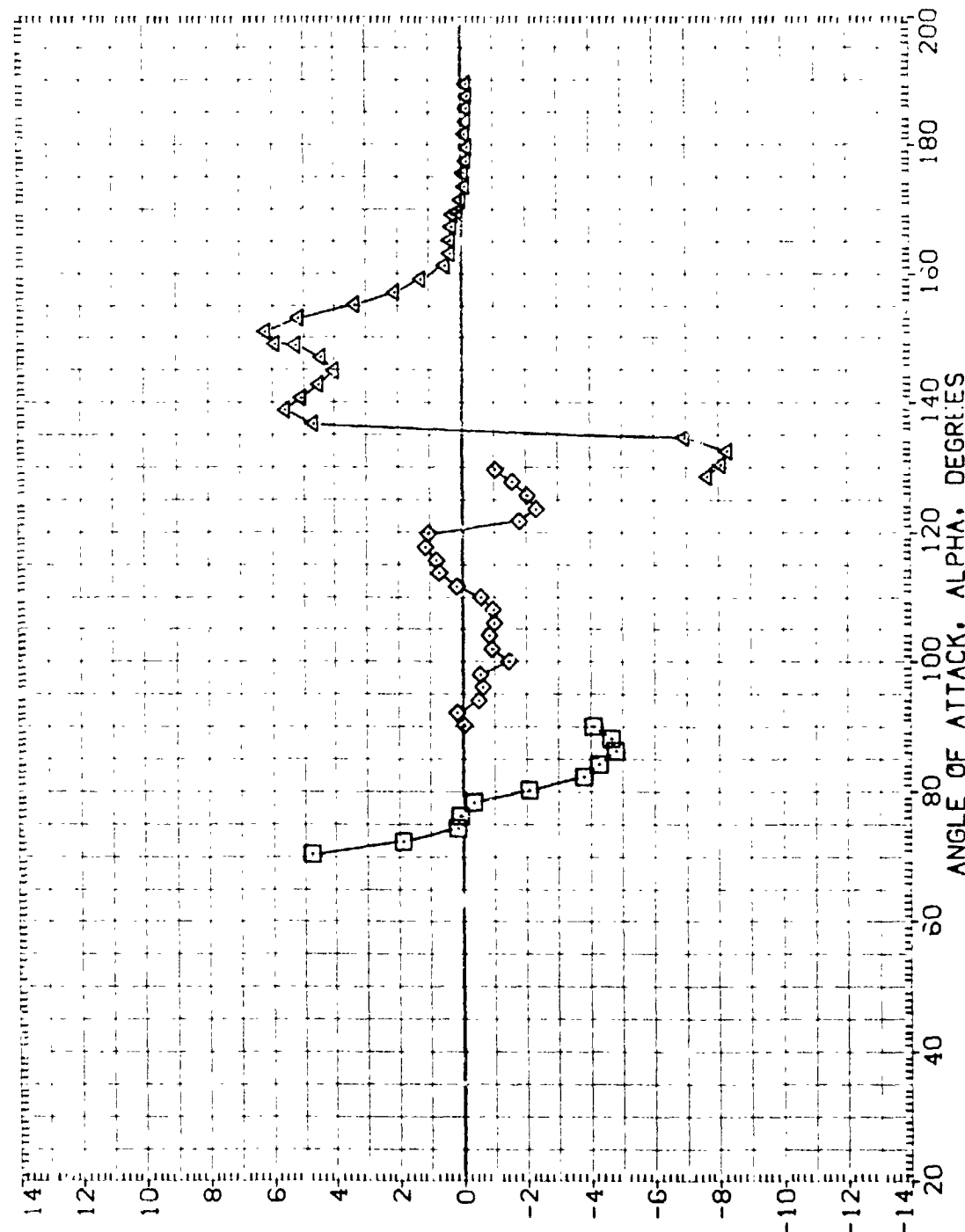


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

CAJMACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

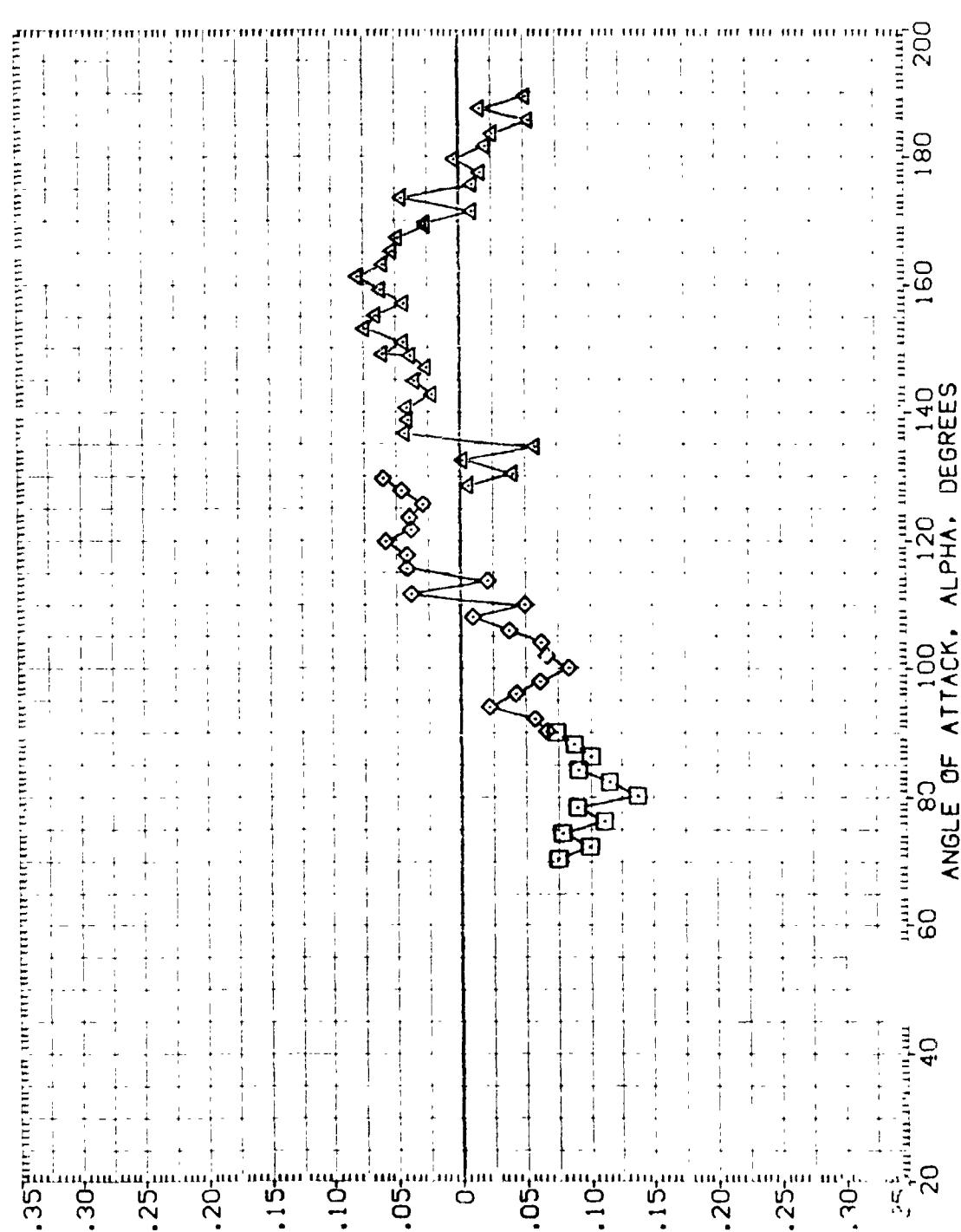


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(A) MACH = .40



REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .5000 IN.  
 BREF .5000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 180.000  
 180.000  
 180.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1HA07) DATA NOT AVAILABLE SRB WITH ALL PROTUBERANCES  
 (A1H054) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1HC07) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1HD07) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

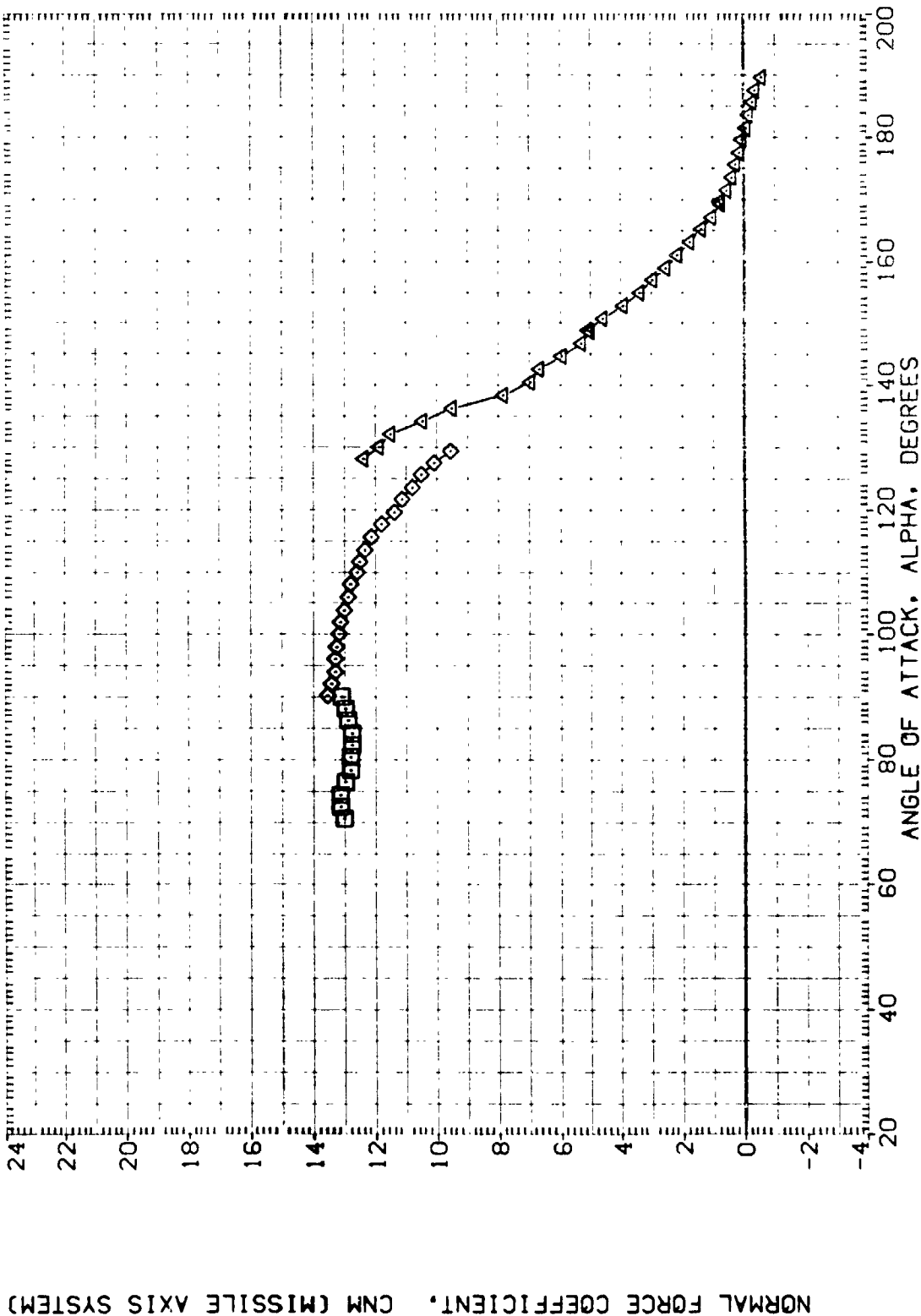


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 180)  
 (B)MACH = .60

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

180.000
180.000
180.000
180.000

SRB WITH ALL PROTUBERANCES  
SRB WITH ALL PROTUBERANCES  
SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL

DATA NOT AVAILABLE  
MFC TVTSD4 (SABF)  
MFC TVTSD4 (SABF)  
MFC TVTSD4 (SABF)

(AIH007)  
(AIH054)  
(AIH007)  
(AIH007)

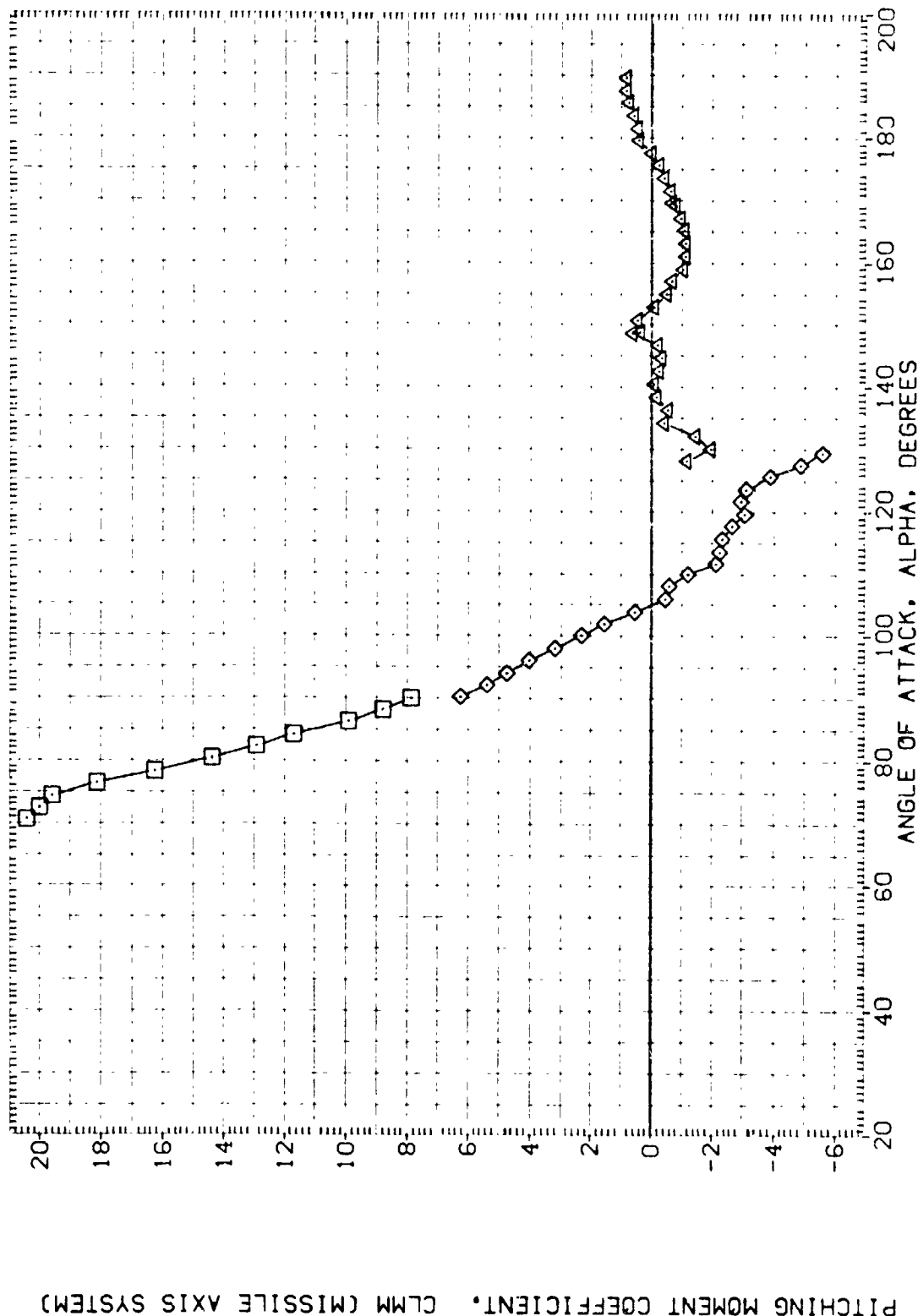


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(B)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF 50.30 IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	REF 6000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	EMRP 5.7210 IN. XS
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. S
			SCALE .0055

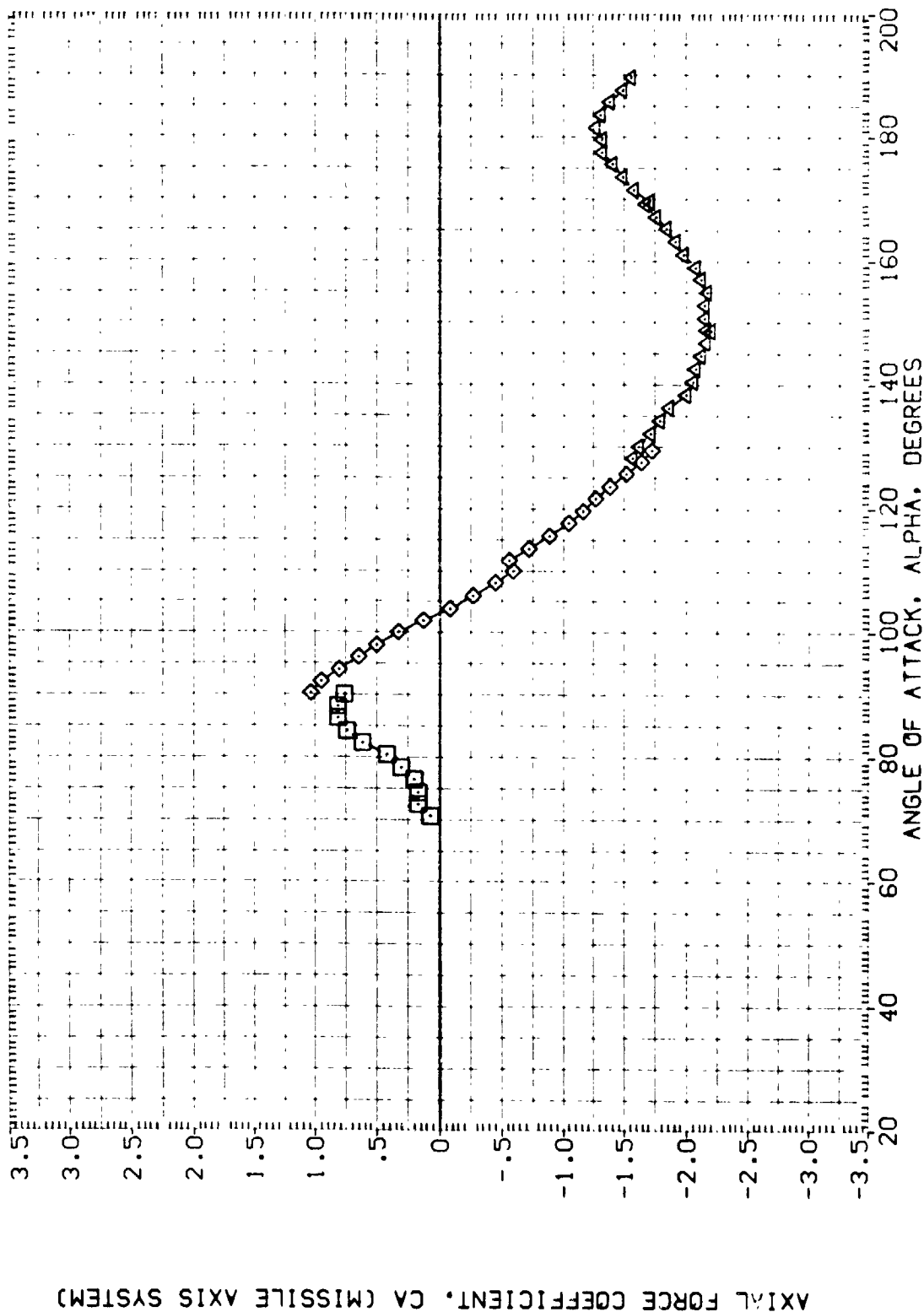


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(B)MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H007)      DATA NOT AVAILABLE      180.000

(A1H054)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

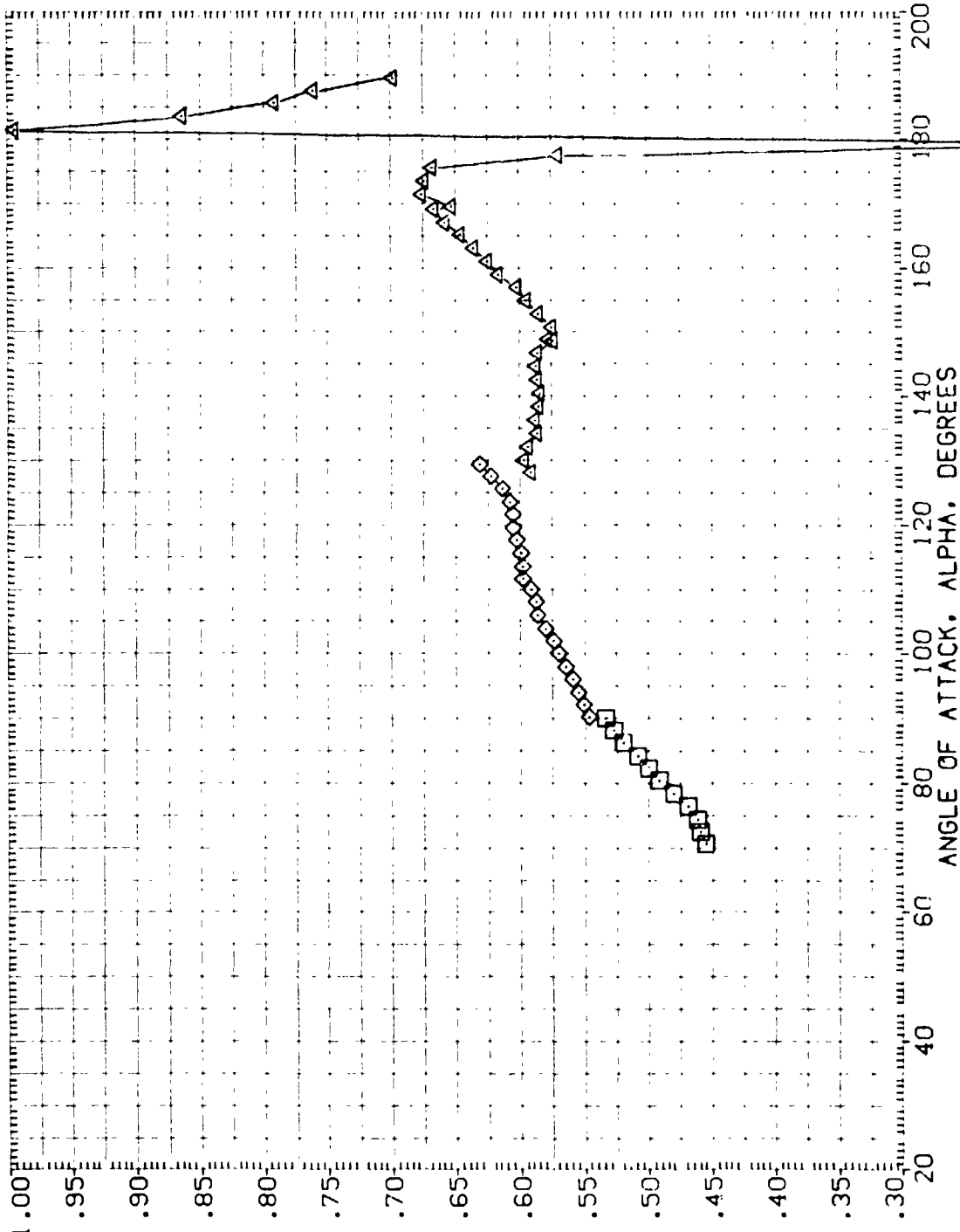


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(B) MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H07)      DATA NOT AVAILABLE      180.000

(A1H054)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION

SREF      .5030      SQ. IN.

LREF      .3000      IN.

BREF      .3000      IN.

XMRP      5.7210      IN.      XS

YMRP      .0000      IN.      YS

ZMRP      .0000      IN.      ZS

SCALE      .0055

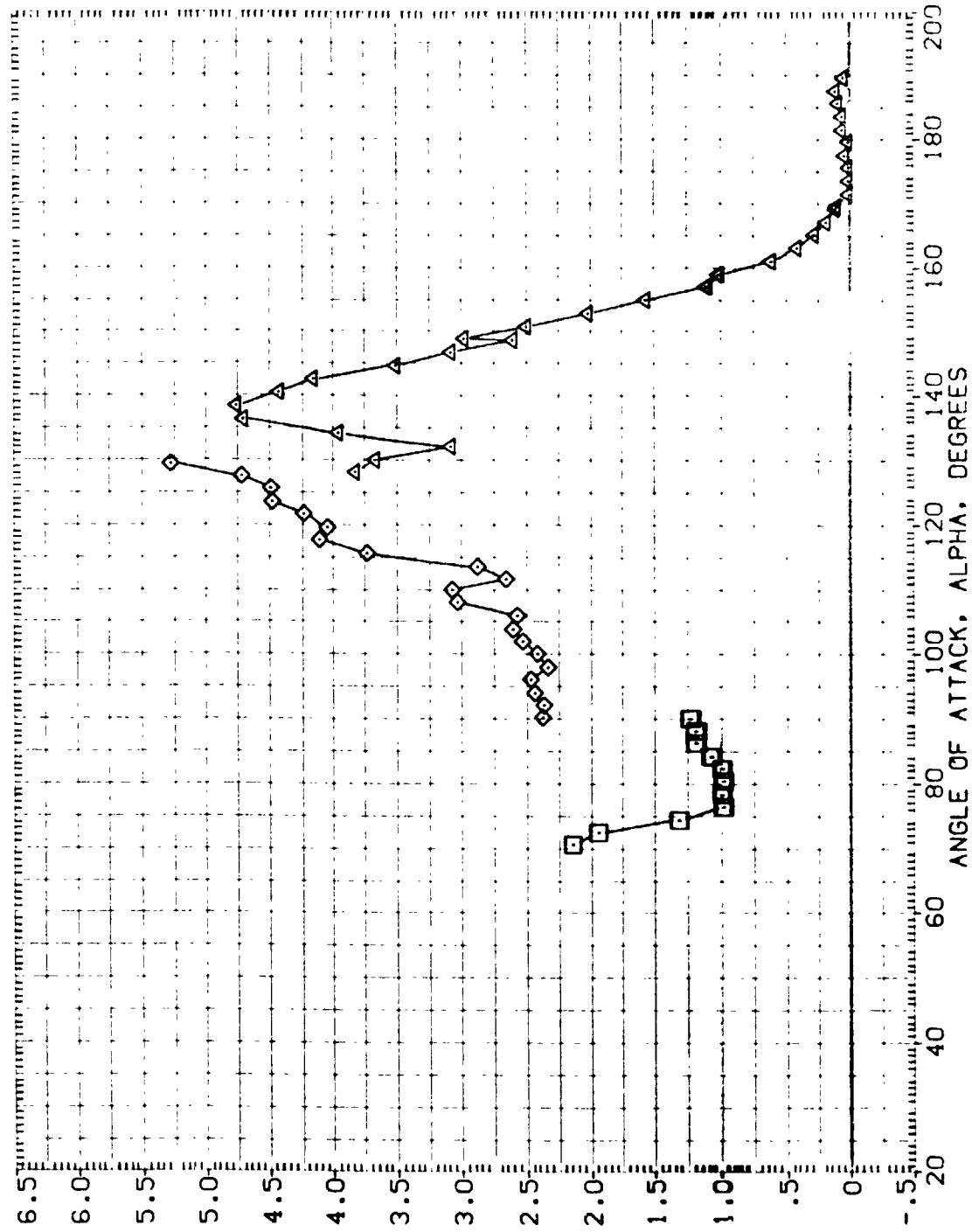


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XPRP 5.7210 IN. XS
			YPRP .0000 IN. YS
			ZPRP .0000 IN. ZS
			SCALE .0055

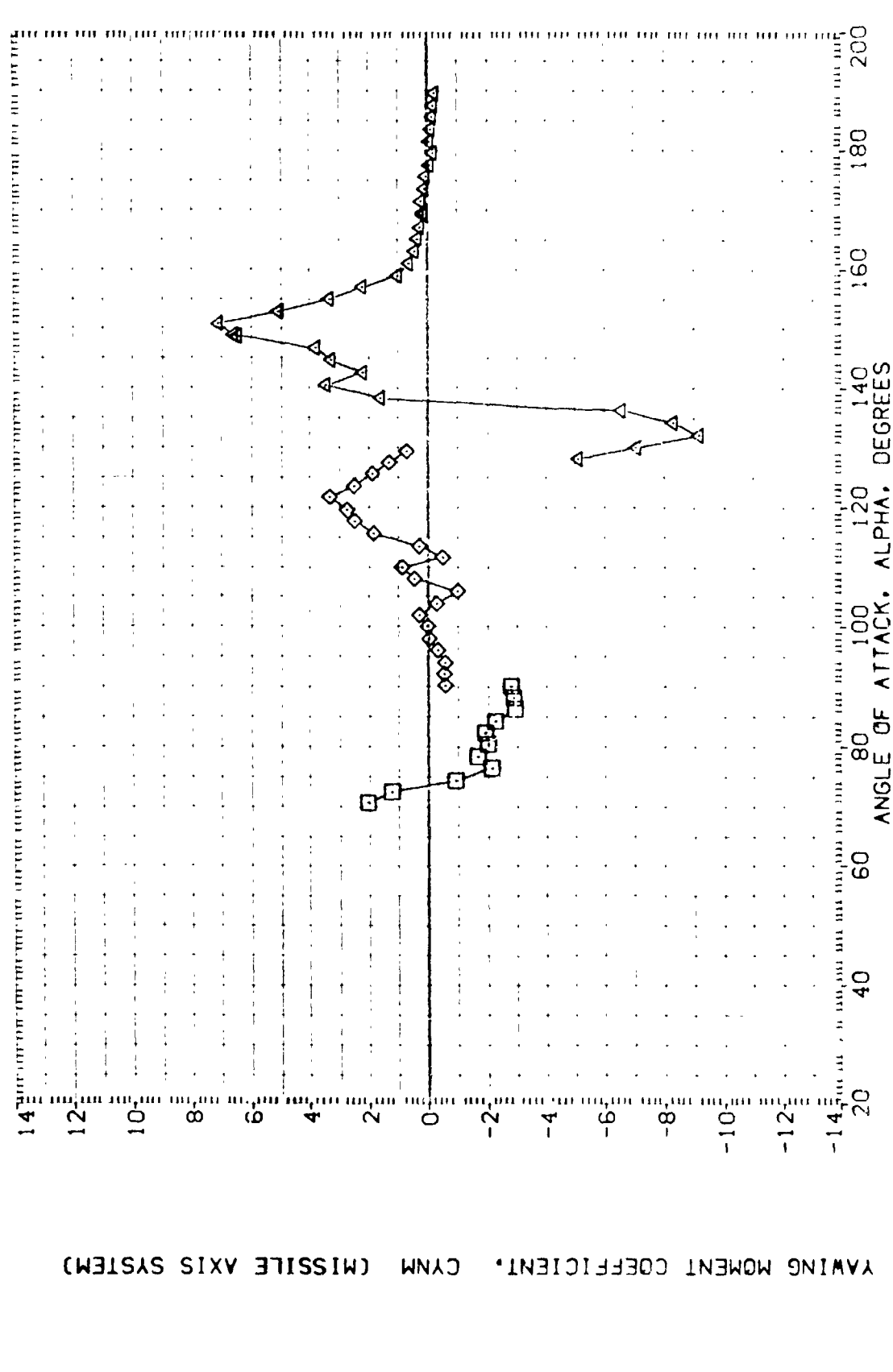


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H004)	MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TW1604 (CABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7310 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

ROLLING MOMENT COEFFICIENT, CRL (MISSILE AXIS SYSTEM)

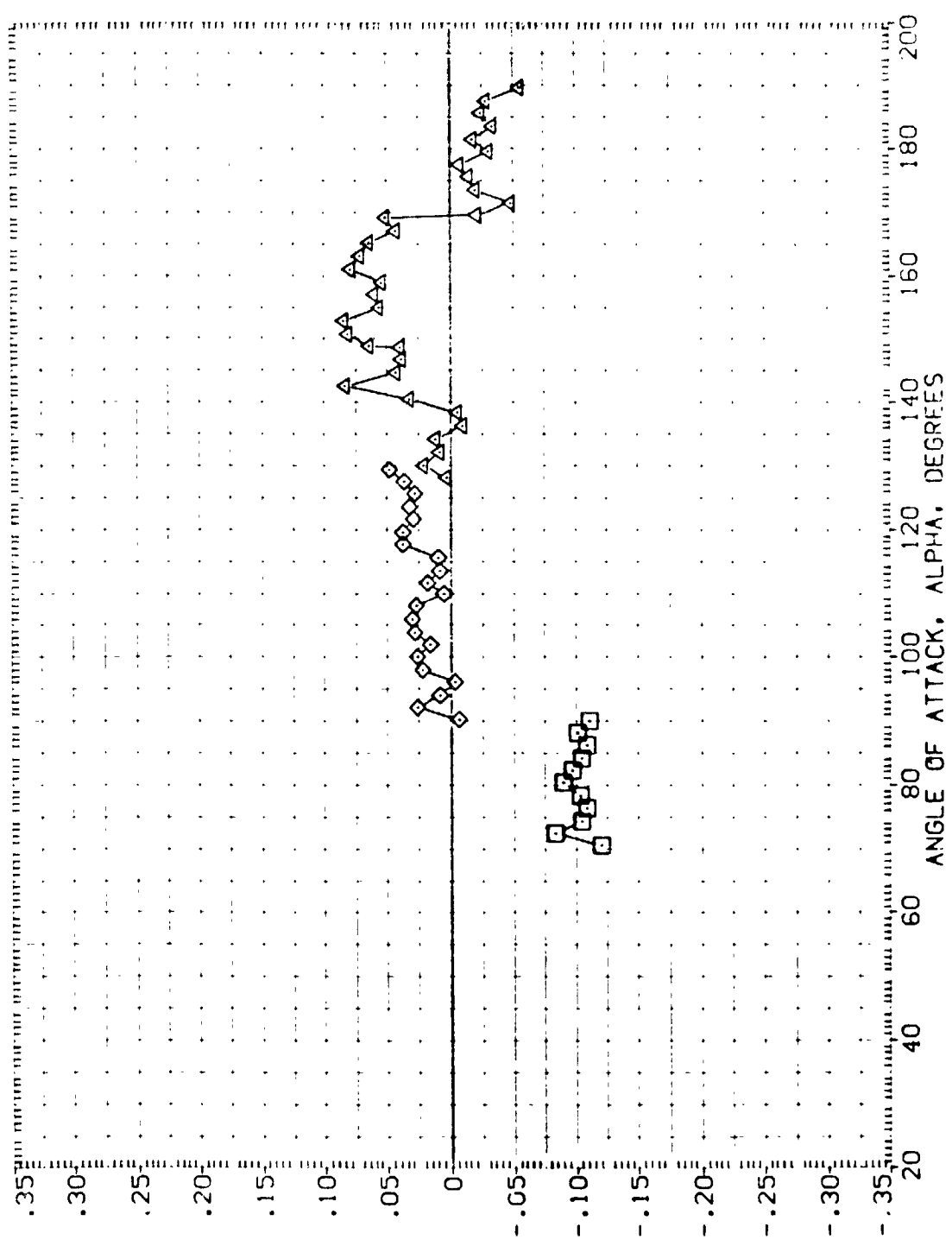


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(B)MACH = .60 PAGE 303

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	DATA NOT AVAILABLE	180.000	SREF .5010 IN.
(A1H04)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .6000 IN.
(A1H07)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	DREF .8000 IN.
(A1H07)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

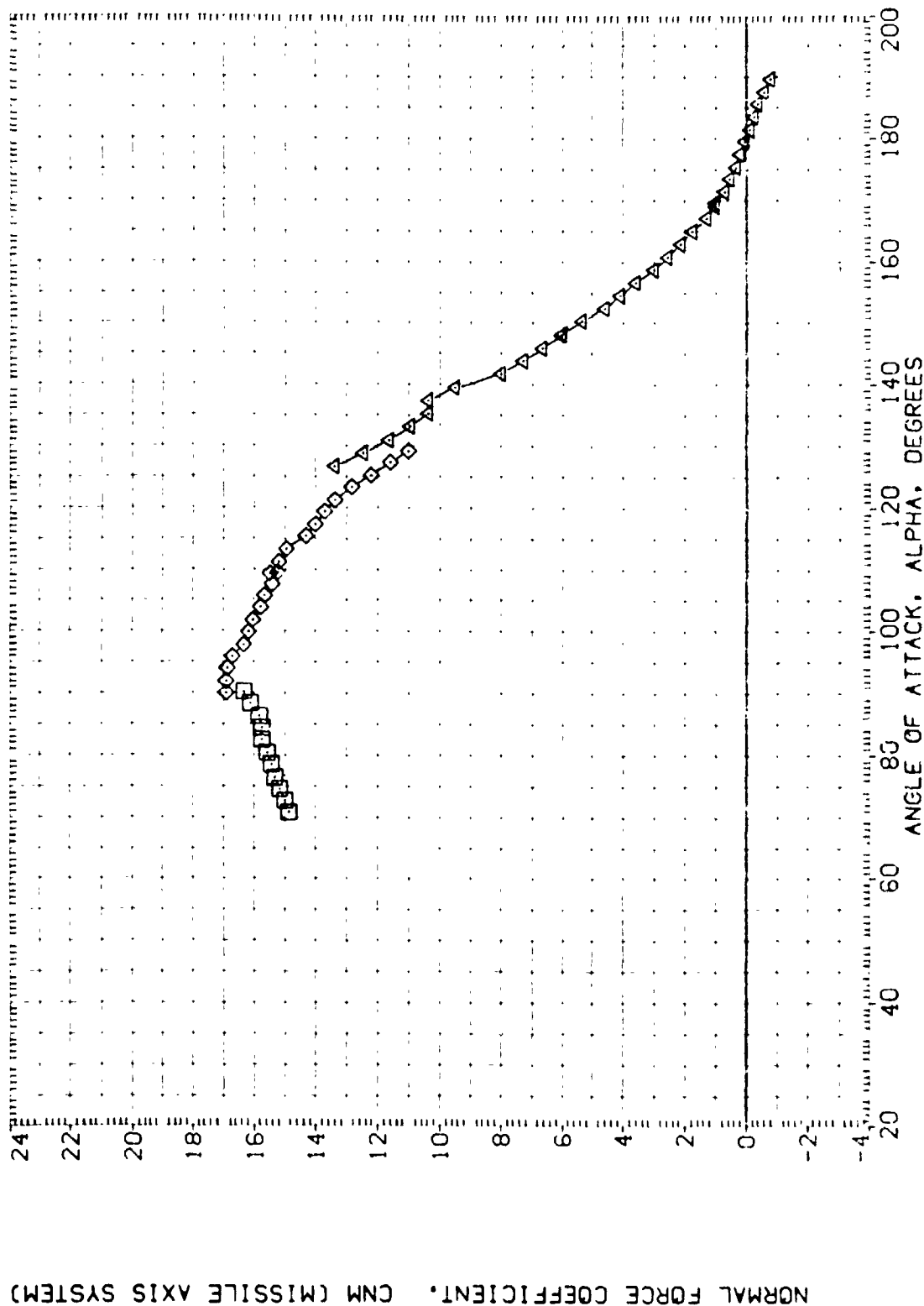


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 180)



DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(AIH007)    DATA NOT AVAILABLE    180.000

(AIH054)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(AIH007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(AIH007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

REFERENCE INFORMATION

SREF    5030    SQ. IN.

UREF    8000    IN.

BREF    8000    IN.

X-REF    5.7210    IN. XS

Y-REF    0.0000    IN. YS

Z-REF    0.0000    IN. ZS

SCALE    .0055

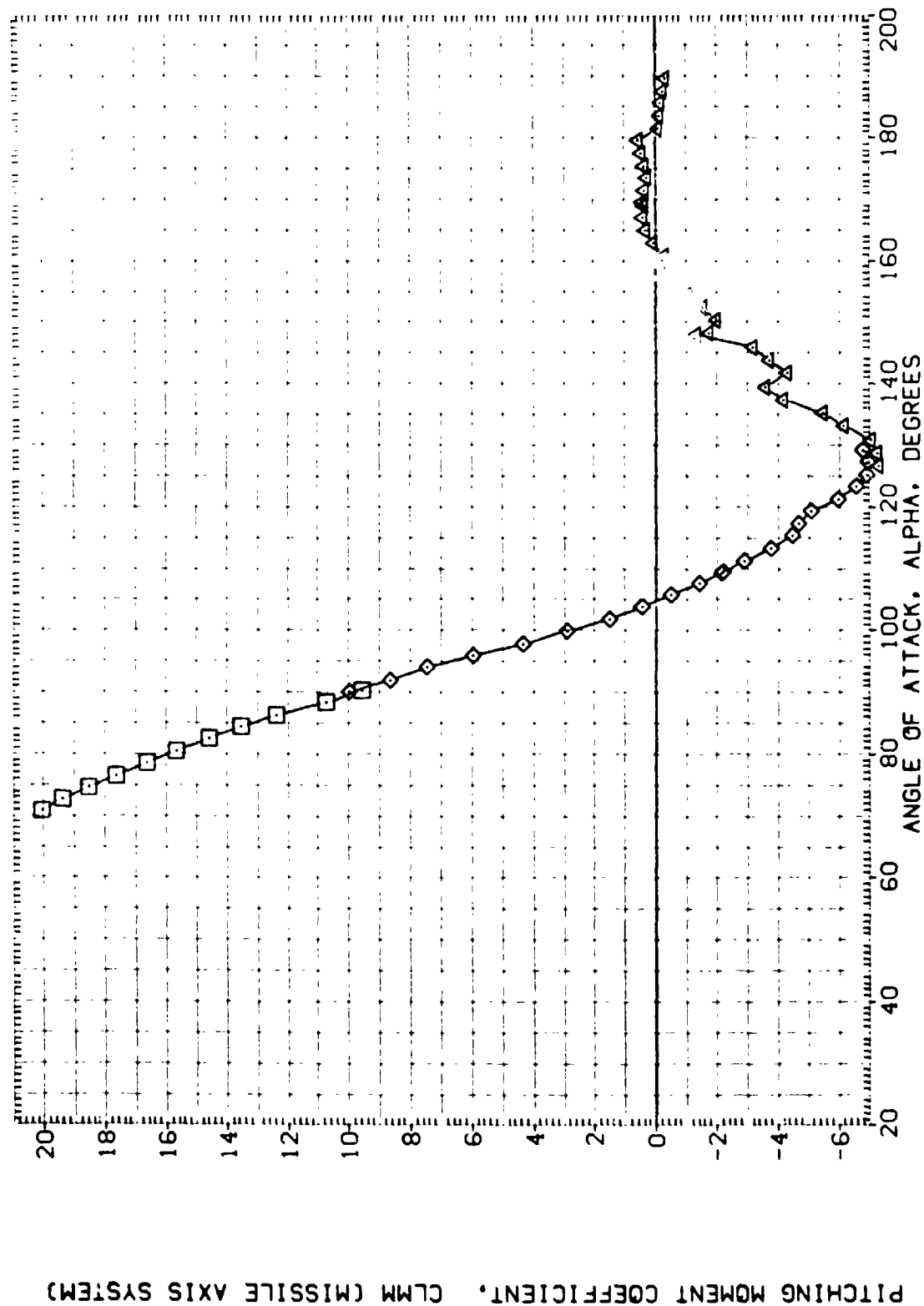


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

(C)MACH = .90

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H007)      DATA NOT AVAILABLE      180.000      SREF      .5030      50. IN.

(A1H054)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      LREF      .8000      IN.

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      BREF      .8000      IN.

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      XMRP      5.7210      IN. XS

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      YMRP      .0000      IN. YS

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      ZMRP      .0000      IN. ZS

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000      SCALE      .0055

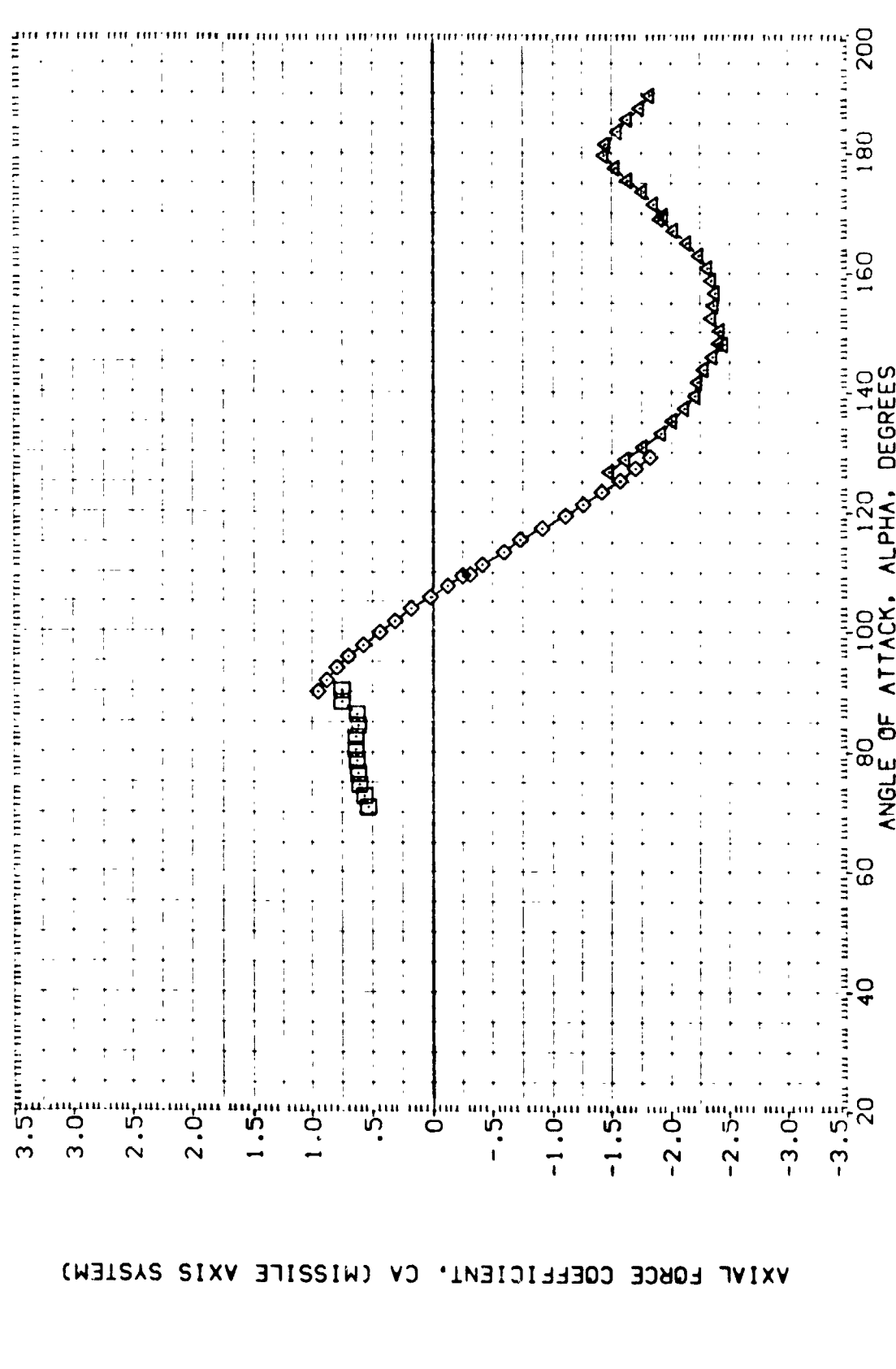


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H007)	DATA NOT AVAILABLE	180.000
(A1H054)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000
(A1H057)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000
(A1H007)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XPRP	5.7210	IN.
YPRP	.0000	IN.
ZPRP	.0000	IN.
SCALE	.0055	

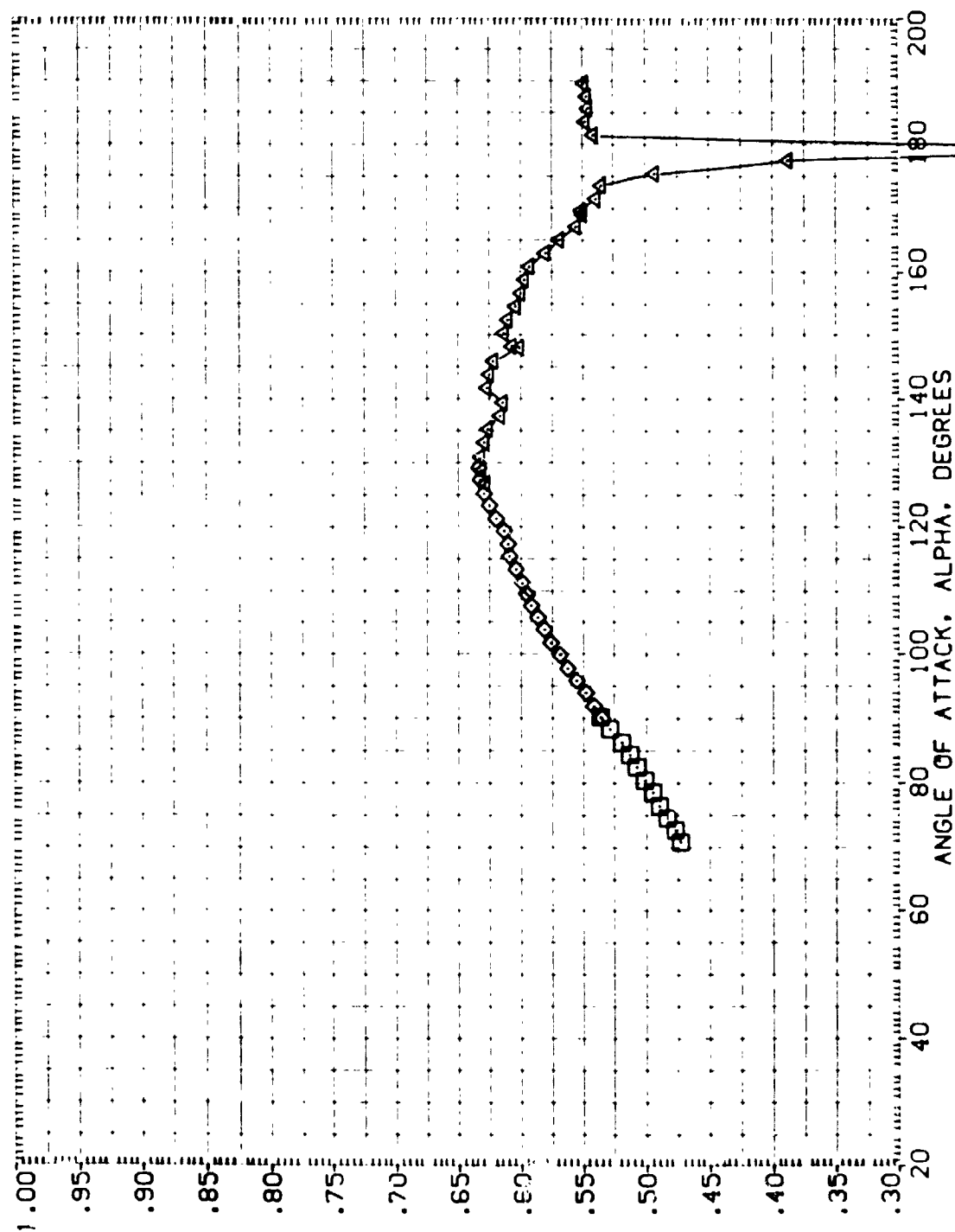


FIGURE 23. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 180)

(C)MACH = .90

ATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A) 4071    DATA NOT AVAILABLE    180.000    SREF    .5C30    SQ. IN.

(A) 4074    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    LREF    .8C00    IN.

(A) 4077    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    SREF    .8C00    IN.

(A) 4077    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    XREF    5.7210    IN. XS

(A) 4077    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    YREF    .0C00    IN. YS

(A) 4077    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    ZREF    .0C00    IN. ZS

(A) 4077    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000    SCALE    .0055

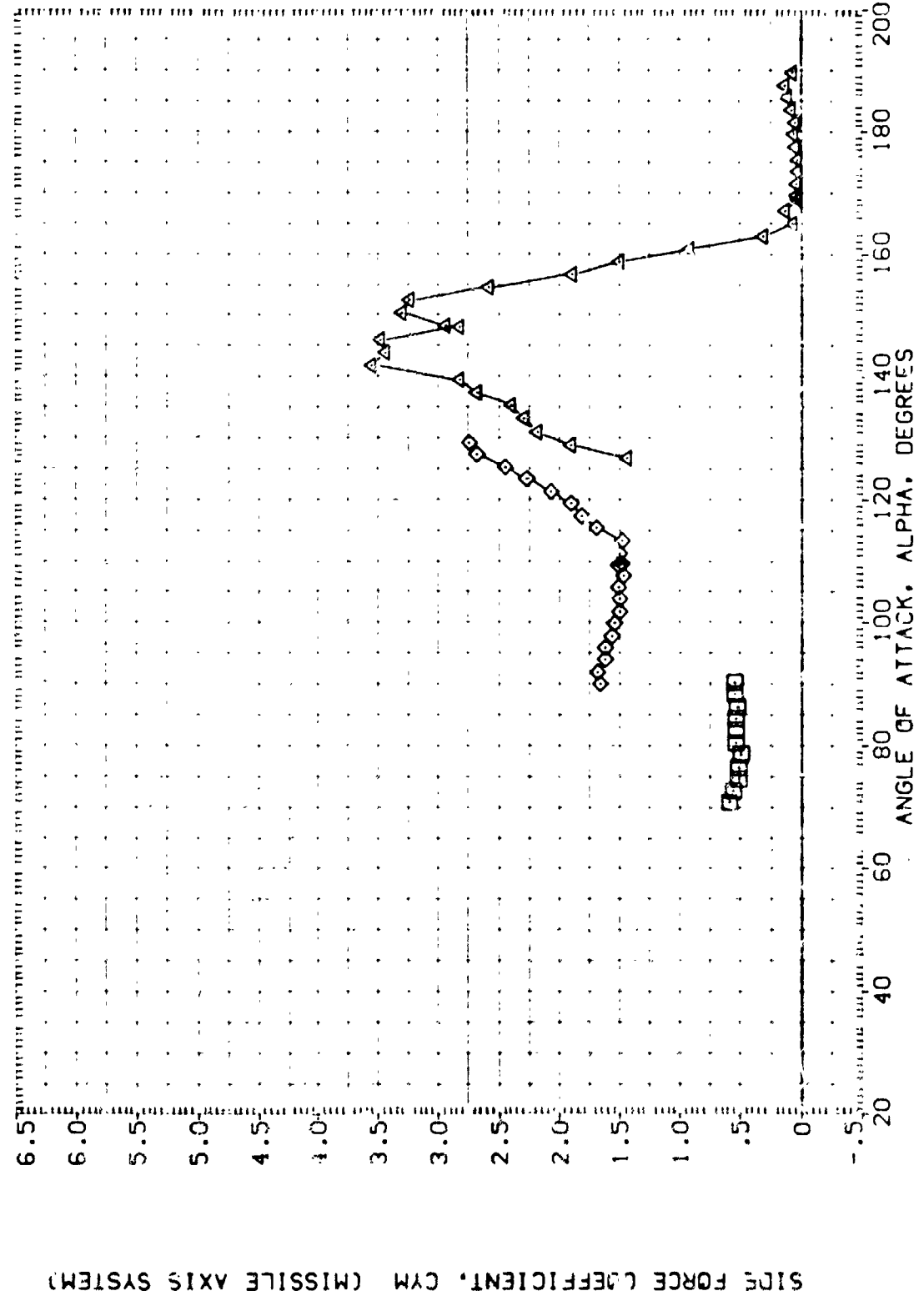


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(C)MACH = .90    PAGE 313

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(AIH054)	MSFC TW604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIH054)	MSFC TW604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(AIH054)	MSFC TW604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
(AIH007)	MSFC TW604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

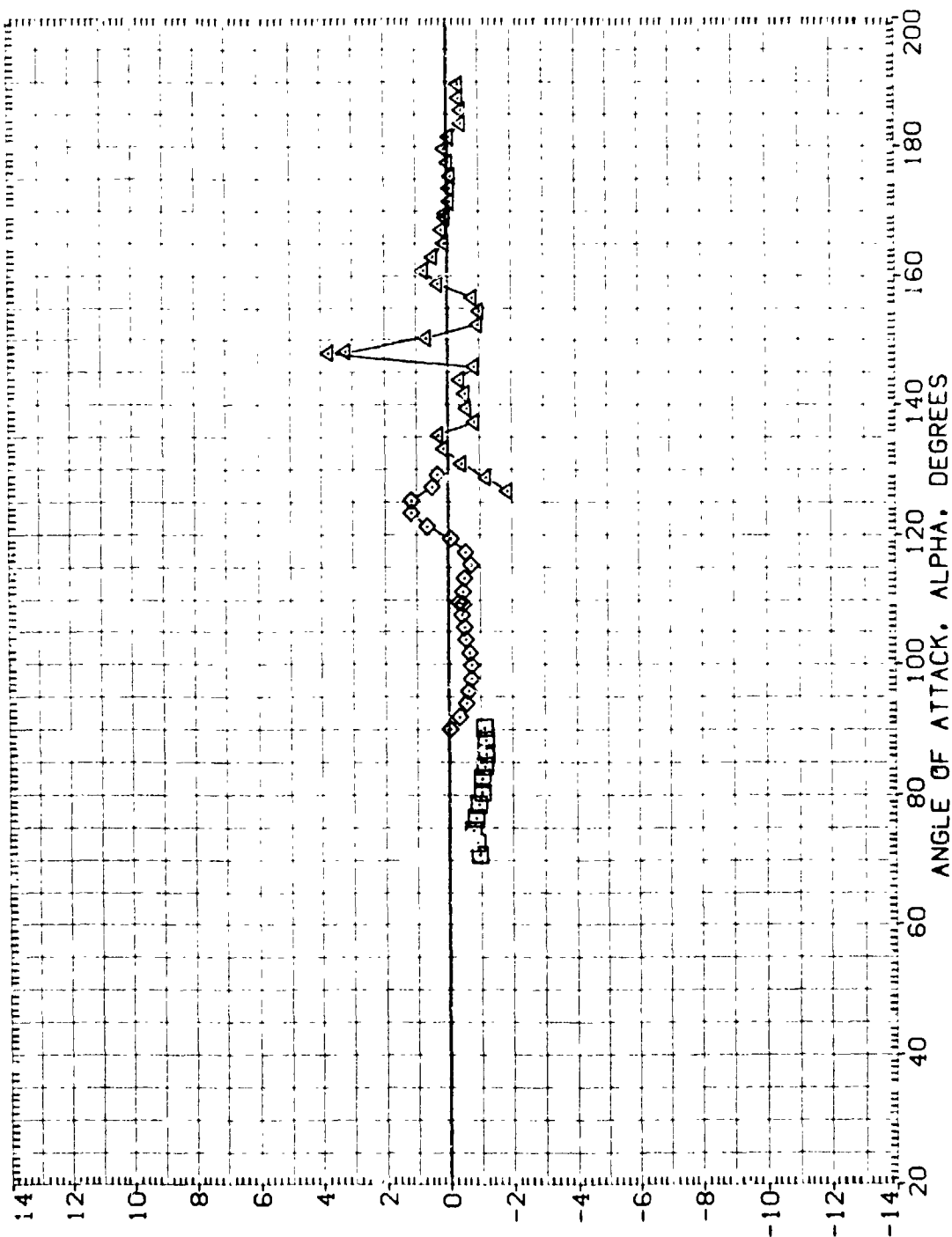


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(C)MACH = .90 PAGE 314

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1HA07)      DATA NOT AVAILABLE

(A1H054)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H007)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H007)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES

PHI

180.000

180.000

180.000

180.000

REFERENCE INFORMATION

SRCF      .503C      50. IN.

LREF      .800C      IN.

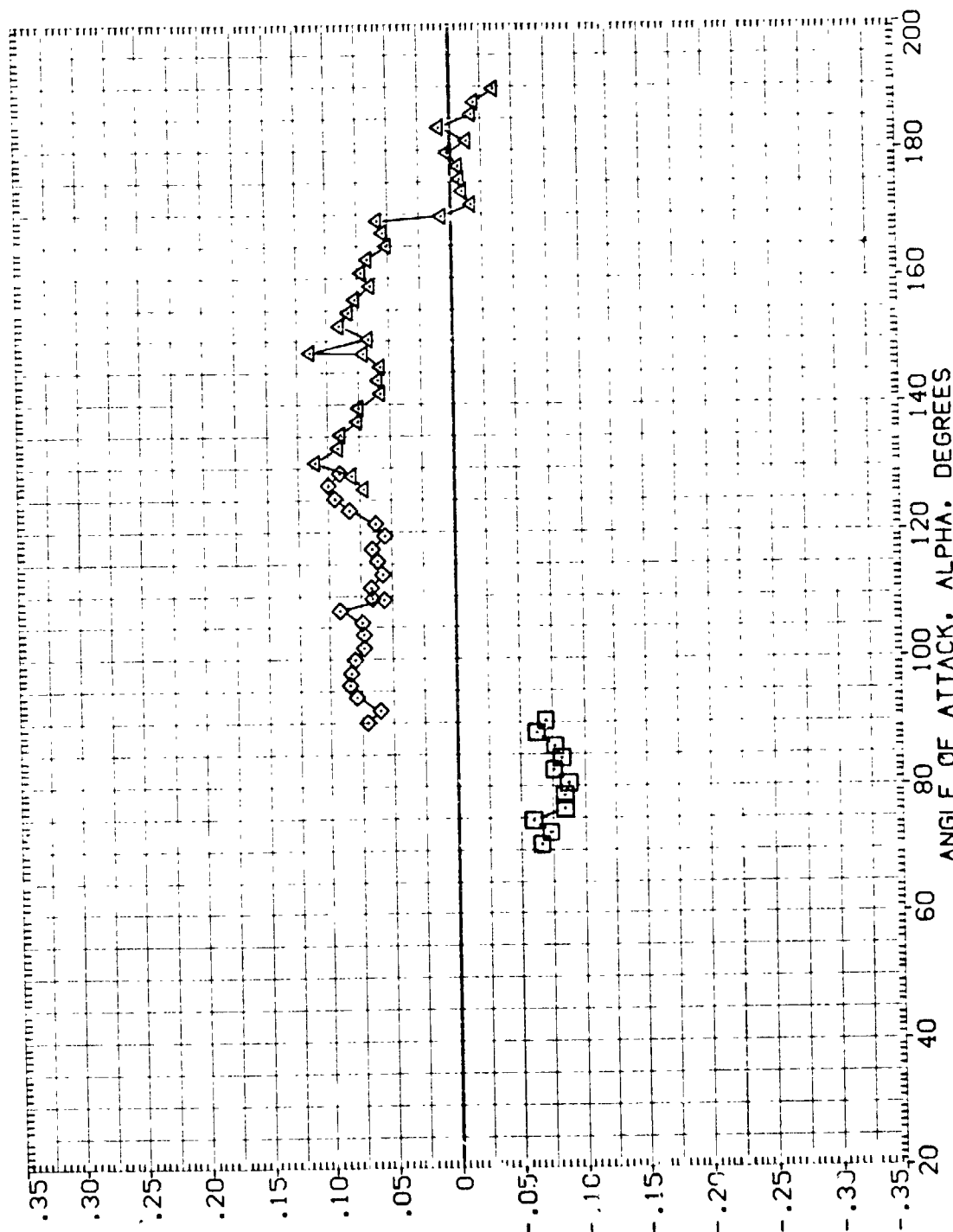
BREF      .800C      IN.

XMRP      5.7210      IN.      XS

YMRP      .0000      IN.      YS

ZMRP      .0000      IN.      ZS

SCALE      .0055



ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

FIGURE 23. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 180)

(C)MACH = .90

# DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H007)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES      PHI 180.000  
 (A1H054)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES      180.000  
 (A1H007)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES      180.000  
 (A1H007)      MSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION  
 SREF .5030 SQ.IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

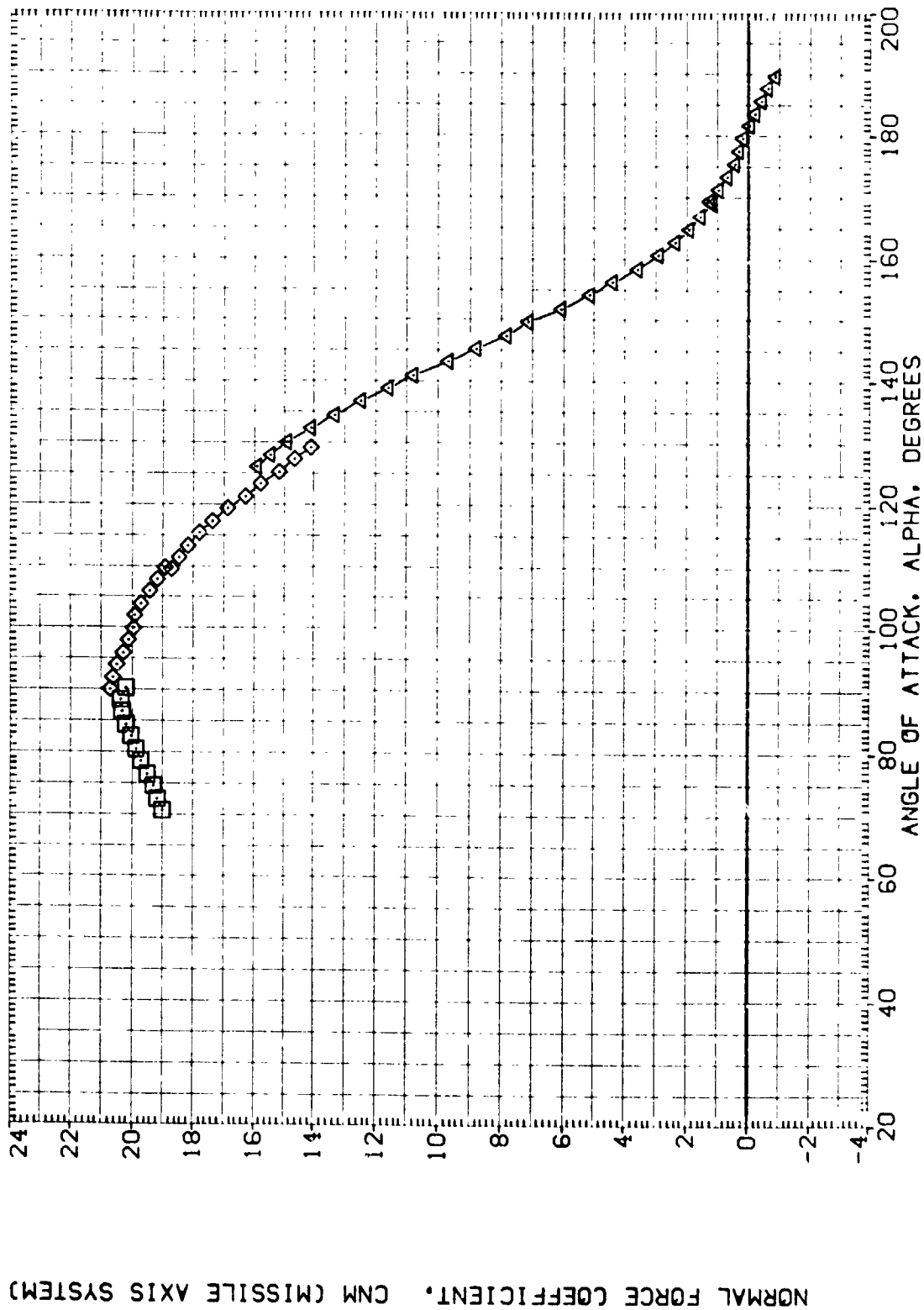


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	DATA NOT AVAILABLE	180.000	SREF .5130 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

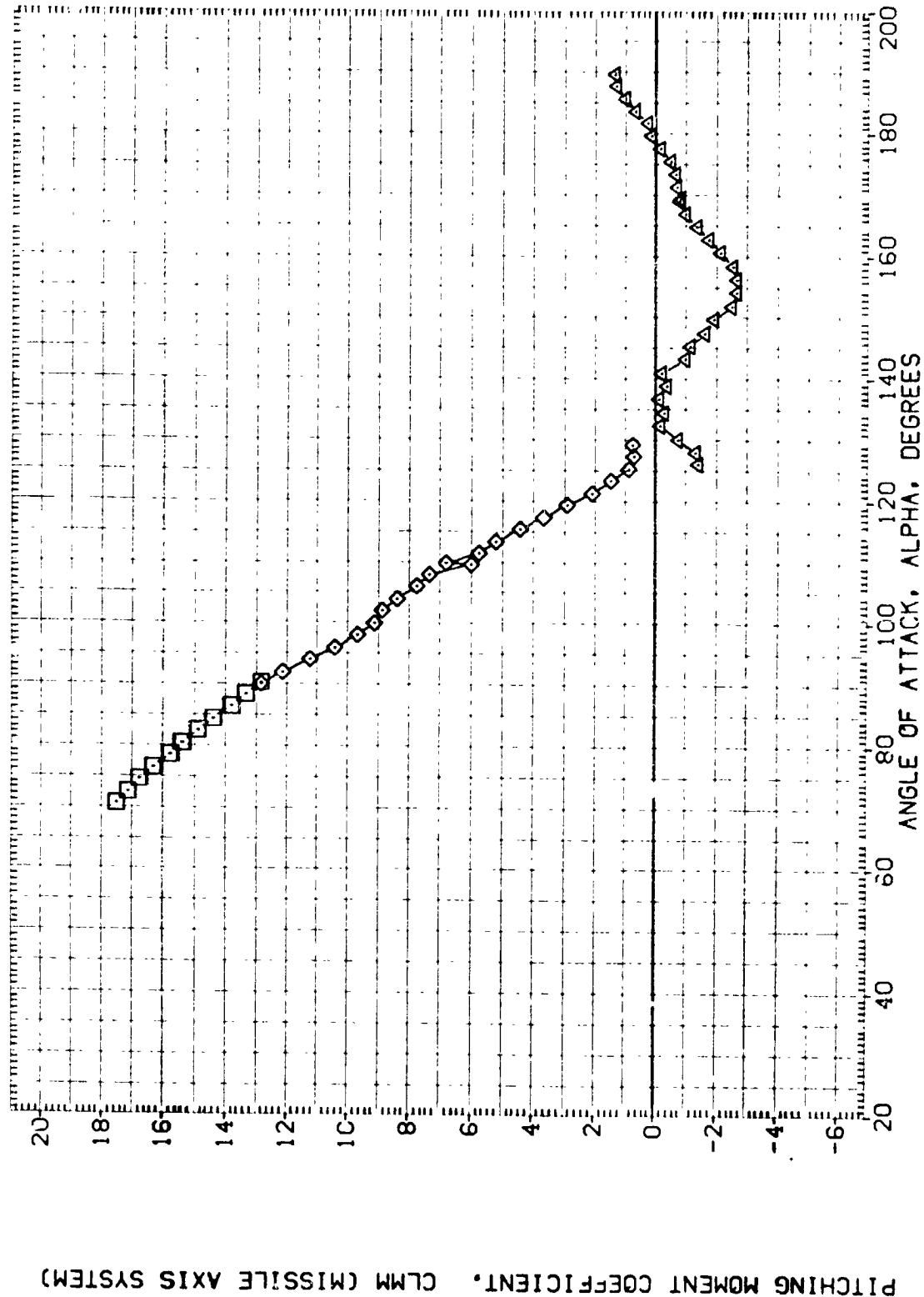


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(O)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	DATA NOT AVAILABLE	180.000	SREF
(AIH054)	SRB WITH ALL PROTUBERANCES	180.000	LREF
(AIH007)	MSFC TVT604 (SABF)	180.000	BREF
(AIH007)	SRB WITH ALL PROTUBERANCES	180.000	XMRP
(AIH007)	MSFC TVT604 (SABF)	180.000	YMRP
			ZMRP
			SCALE
			.0055

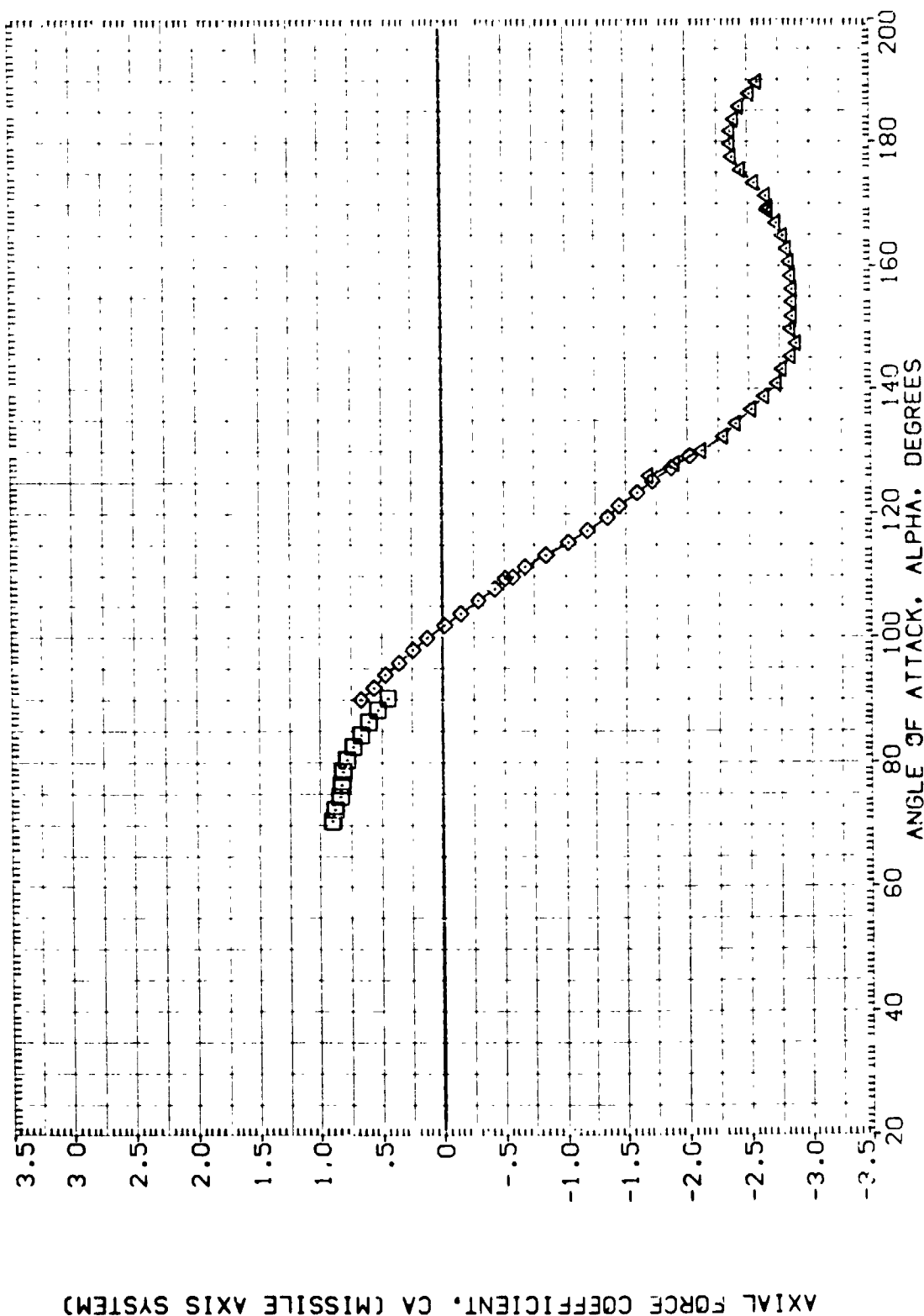


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(D)MACH = 1.20

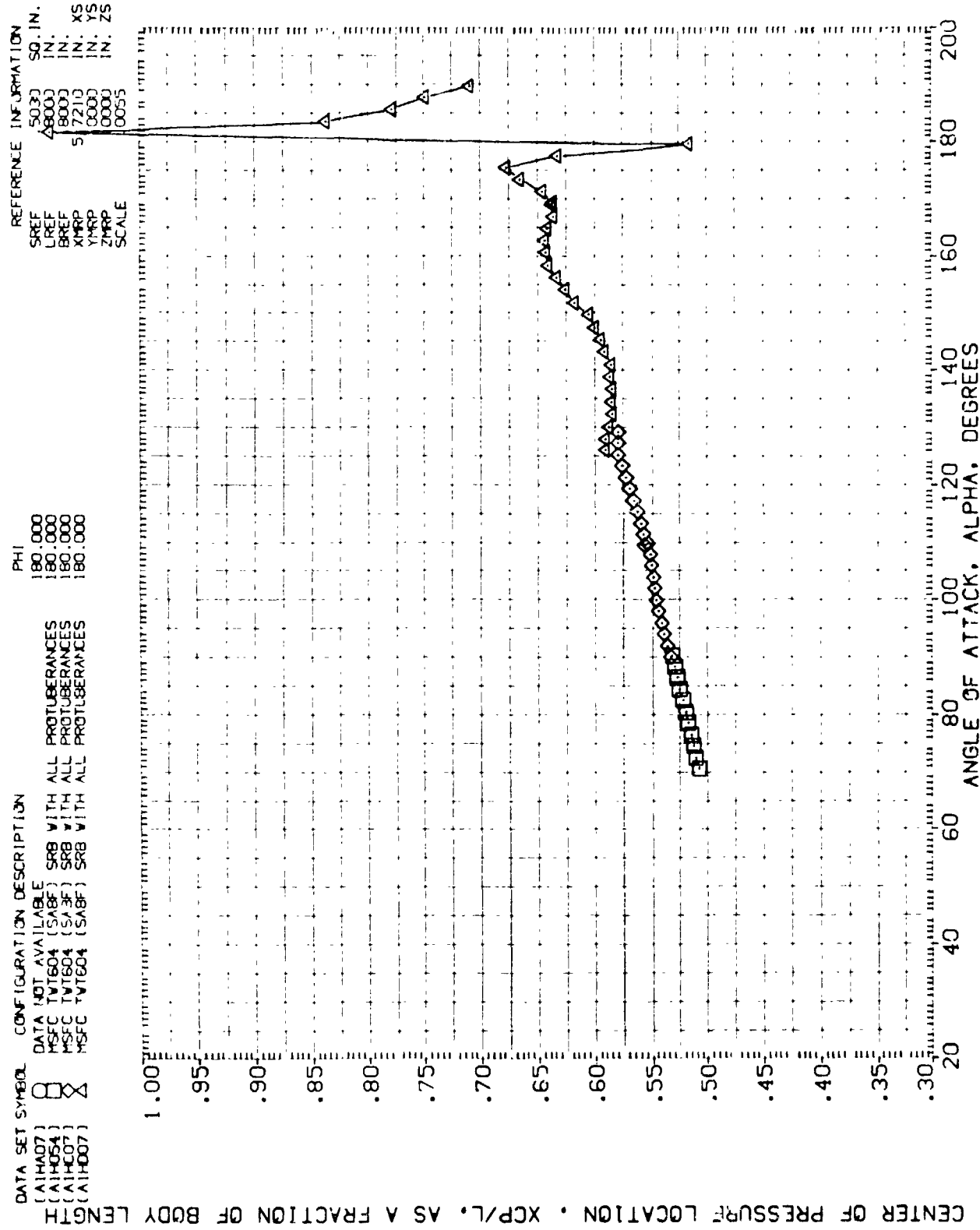


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	DATA NOT AVAILABLE	180.000	SREF .5030 IN.
(AIH054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

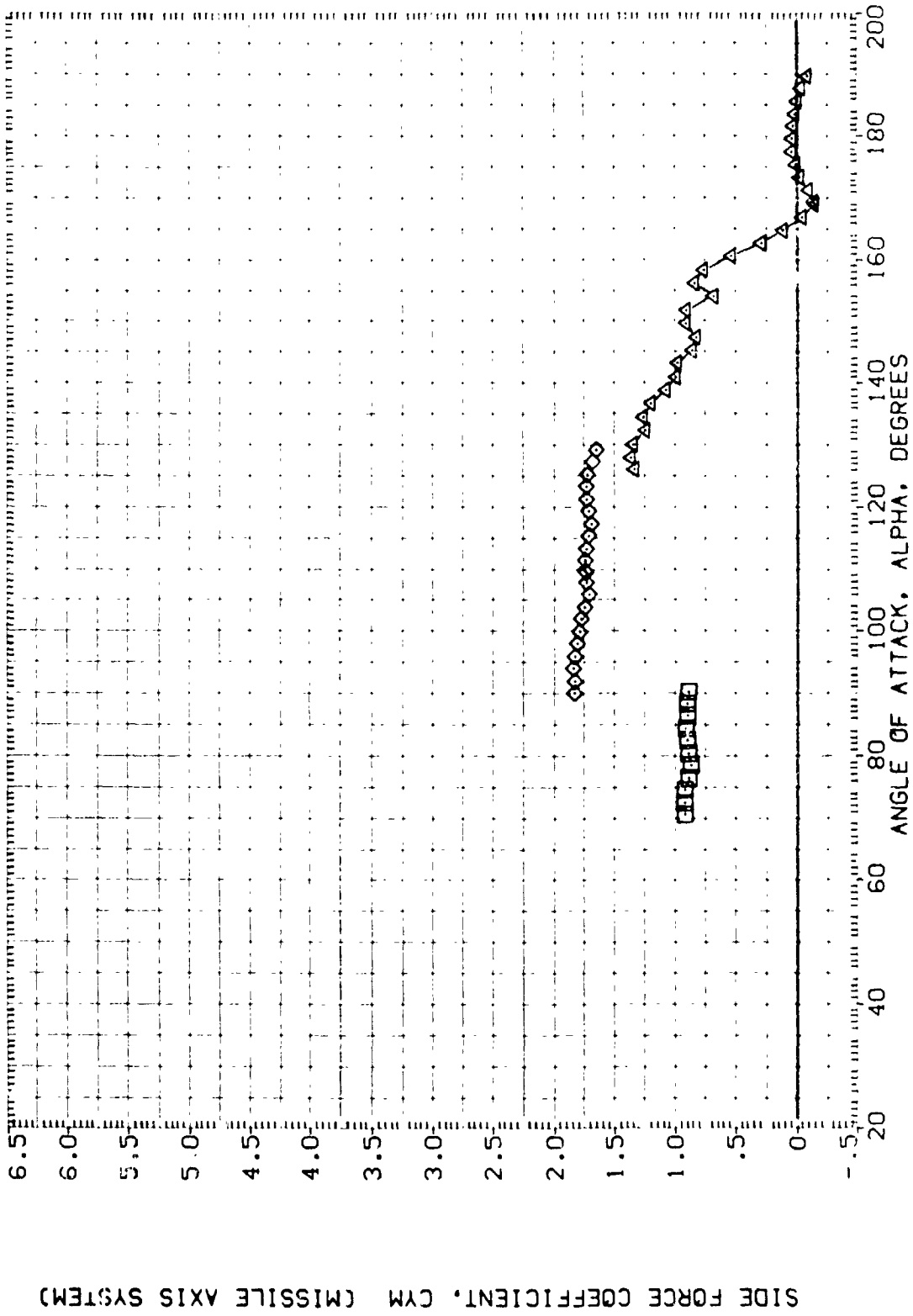


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\phi = 180^\circ$ )

(C)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

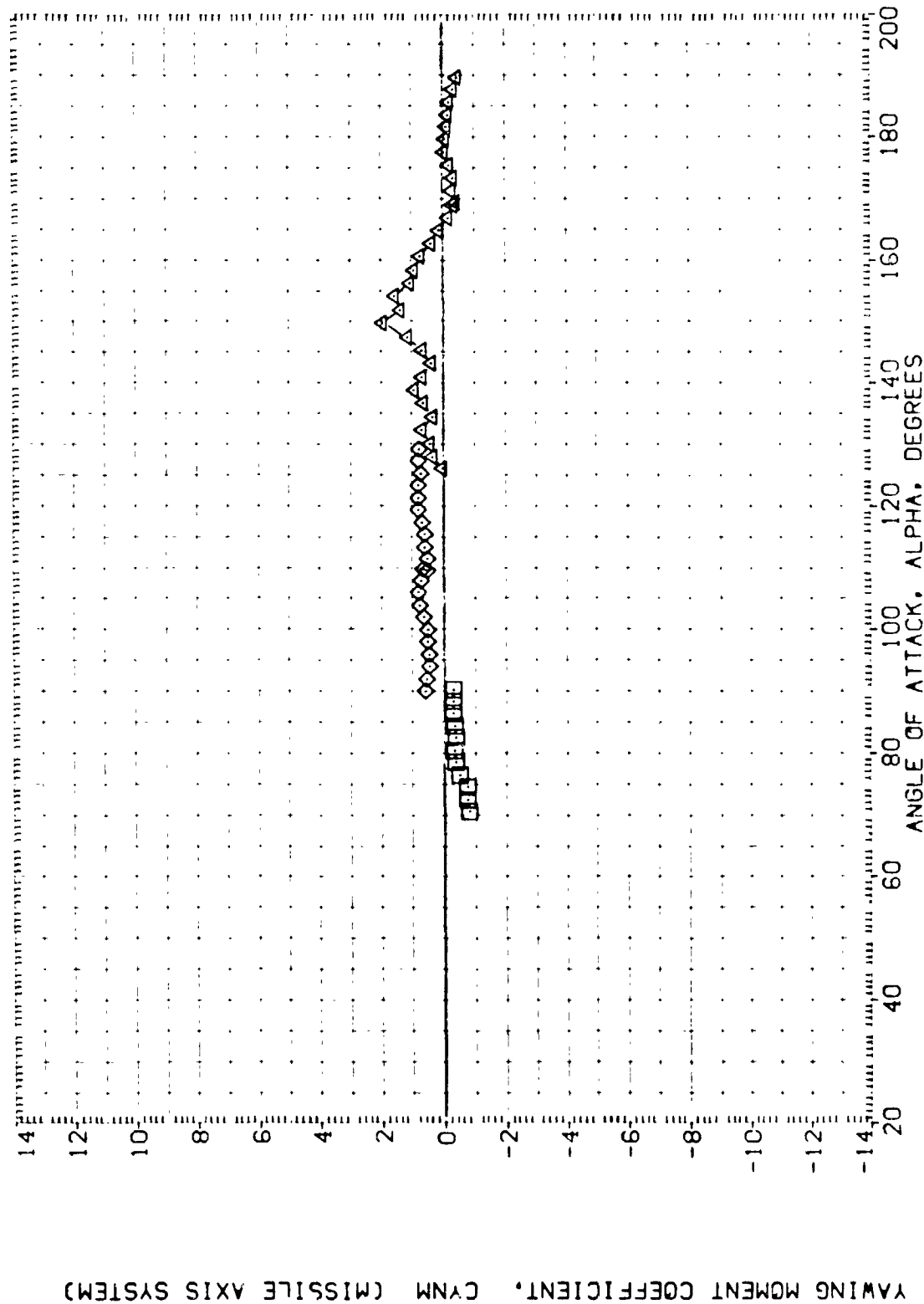


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES ( $\phi = 180^\circ$ )

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(AIHAD7)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	180.000		SREF	50.30 IN.
(AIH054)	□	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	180.000		LREF	.8000 IN.
(AIHC07)	×	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	180.000		BREF	.8000 IN.
(AIHD07)	×	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	180.000		YMRP	5.7210 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

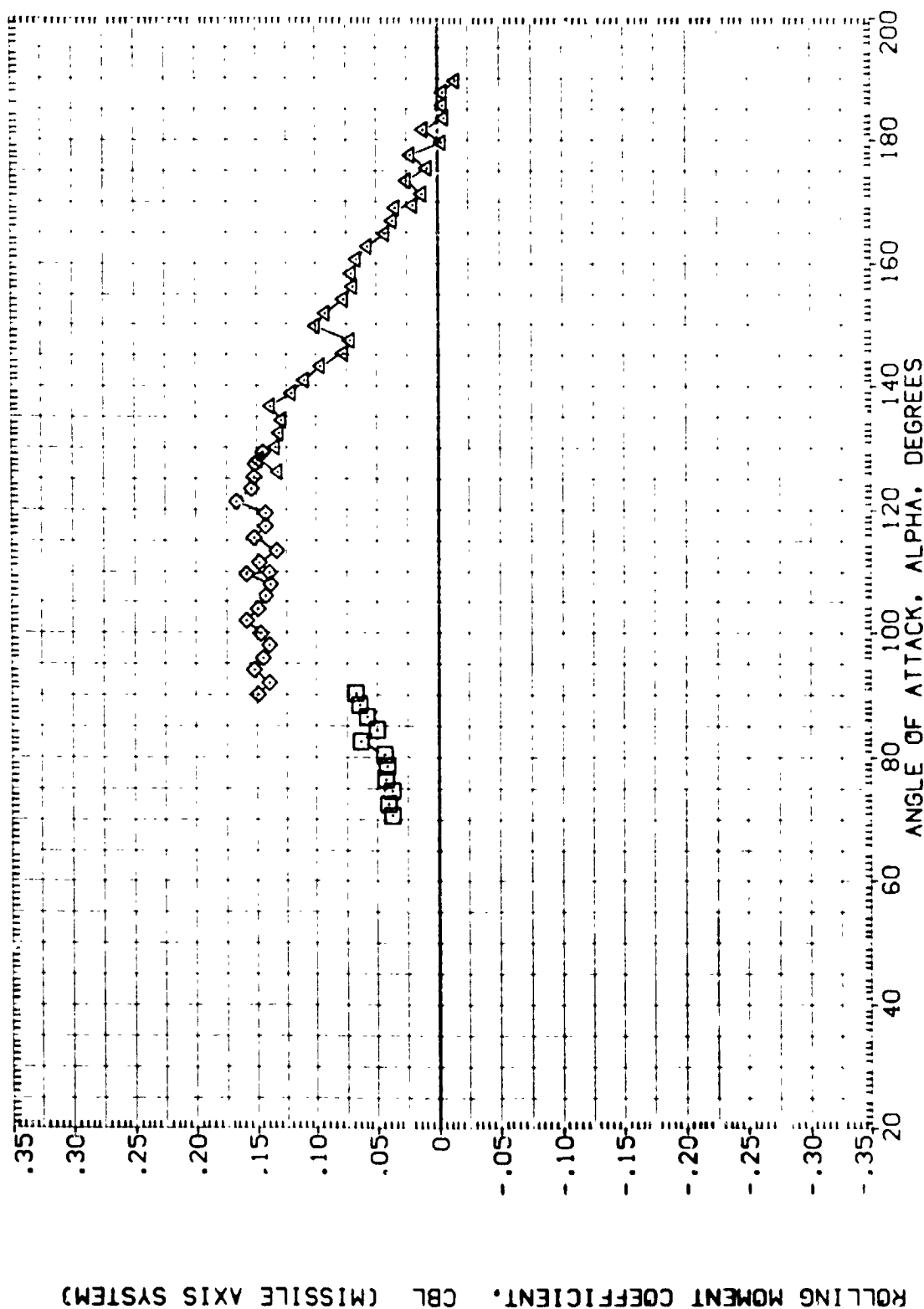


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(O)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1-HA07)	DATA NOT AVAILABLE	180.000	SREF .5030 IN.
(A1-H054)	DATA NOT AVAILABLE	180.000	LREF .8000 IN.
(A1-H007)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF 5.7210 IN.
	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP .0000 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

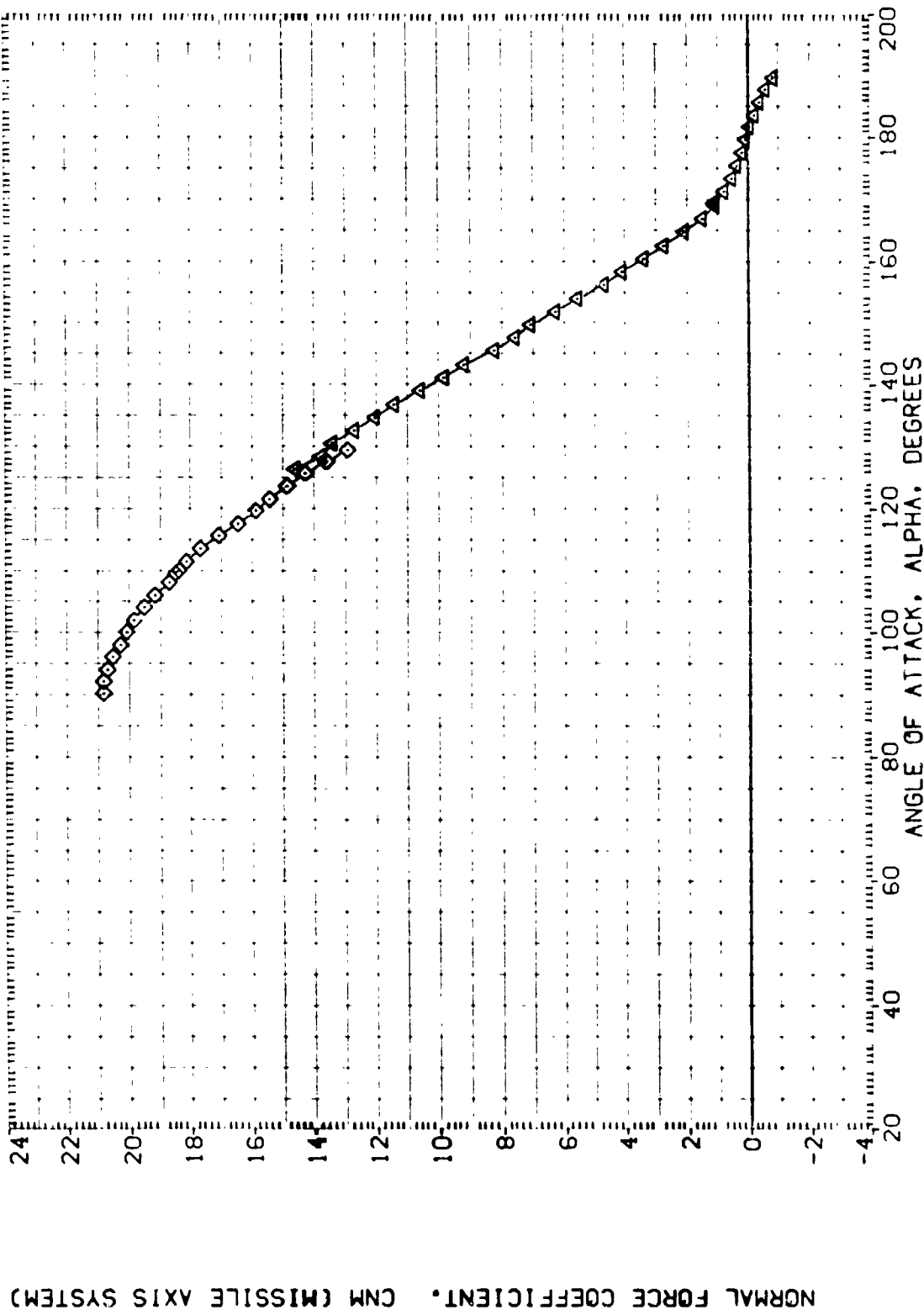


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(E)MACH = 1.96

DATA SET SYMBOL  
 (A1H007)  
 (A1H054)  
 (A1H007)  
 (A1H007)

CONFIGURATION DESCRIPTION  
 DATA NOT AVAILABLE  
 DATA NOT AVAILABLE  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XPRP 5.7210 IN.  
 YPRP .0000 IN.  
 ZPRP .0000 IN.  
 SCALE .0055

PHI  
 180.000  
 180.000  
 180.000  
 180.000

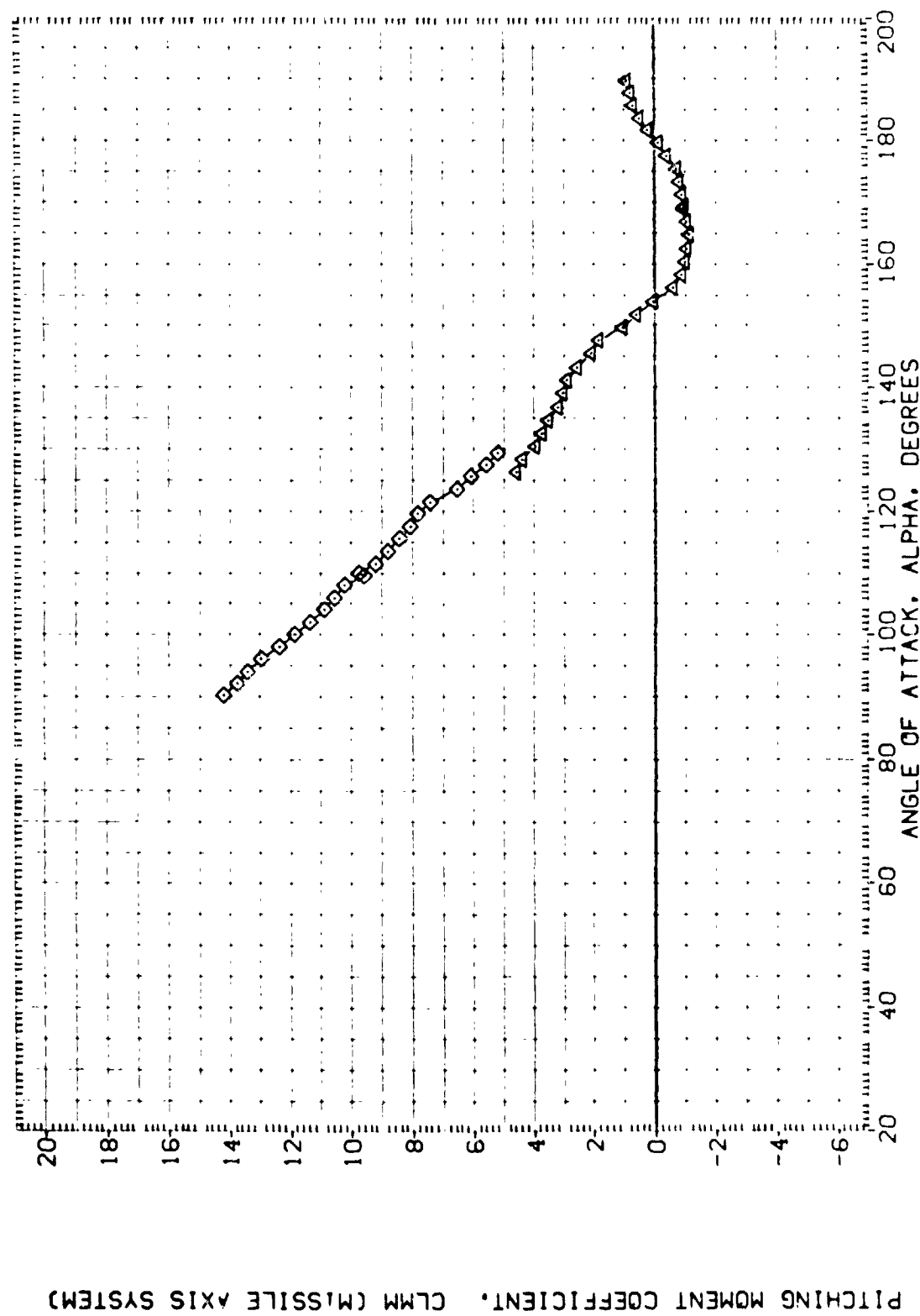


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	190.000	SREF .5030 IN.
(A1H054)	DATA NOT AVAILABLE	190.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	190.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	190.000	XREF 5.7210 IN.
			YREF .0000 IN.
			ZREF .0000 IN.
			SCALE .0055

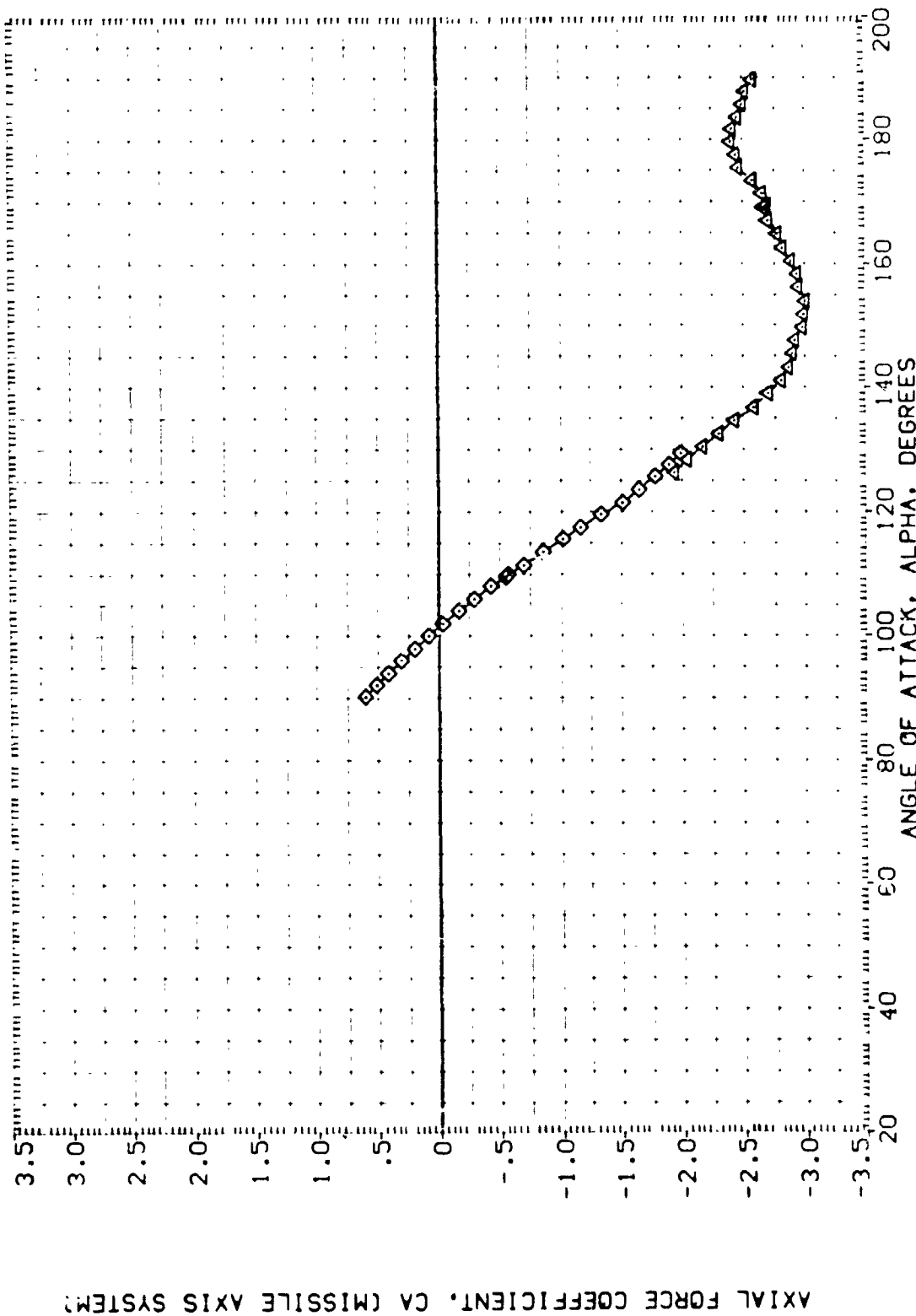


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(E)MACH = 1.96



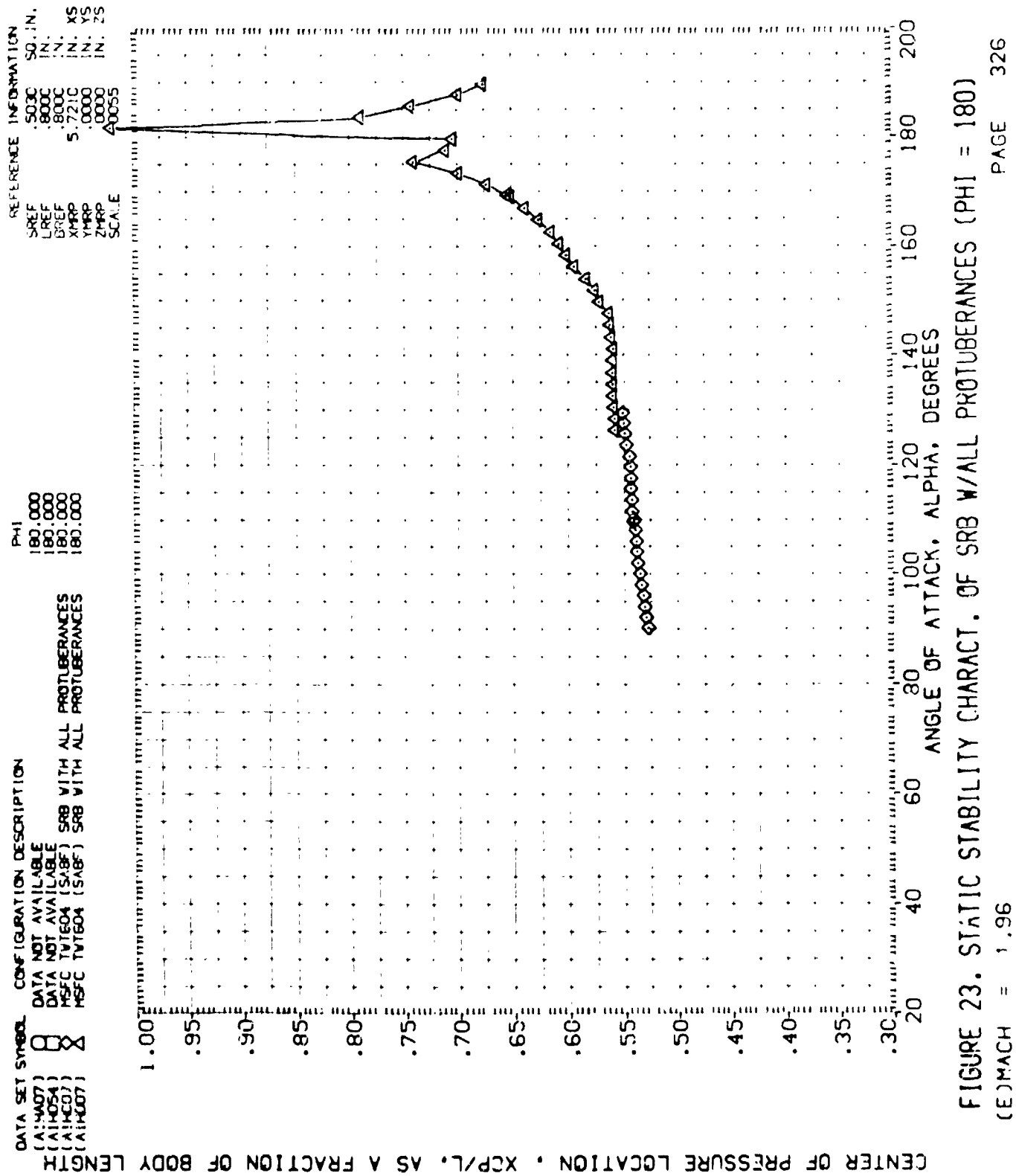


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

(E)MACH = 1.96

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H007)      DATA NOT AVAILABLE      180.000

(A1H024)      DATA NOT AVAILABLE      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .6000 IN.

SRFREF .8000 IN.

YMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

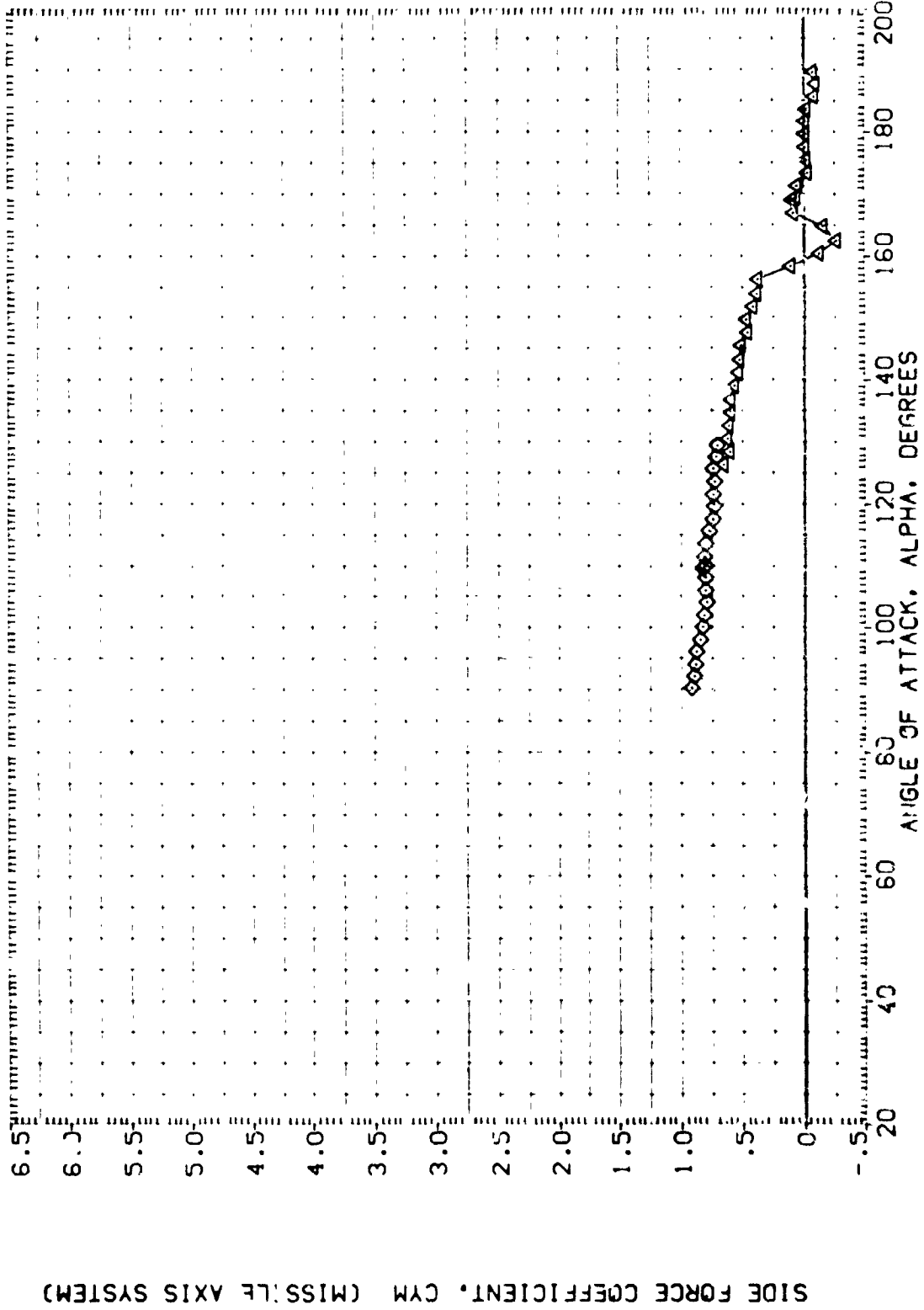


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(M)MACH = 1.96

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

180.000
180.000
180.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H007)	DATA NOT AVAILABLE
(A1H054)	DATA NOT AVAILABLE
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

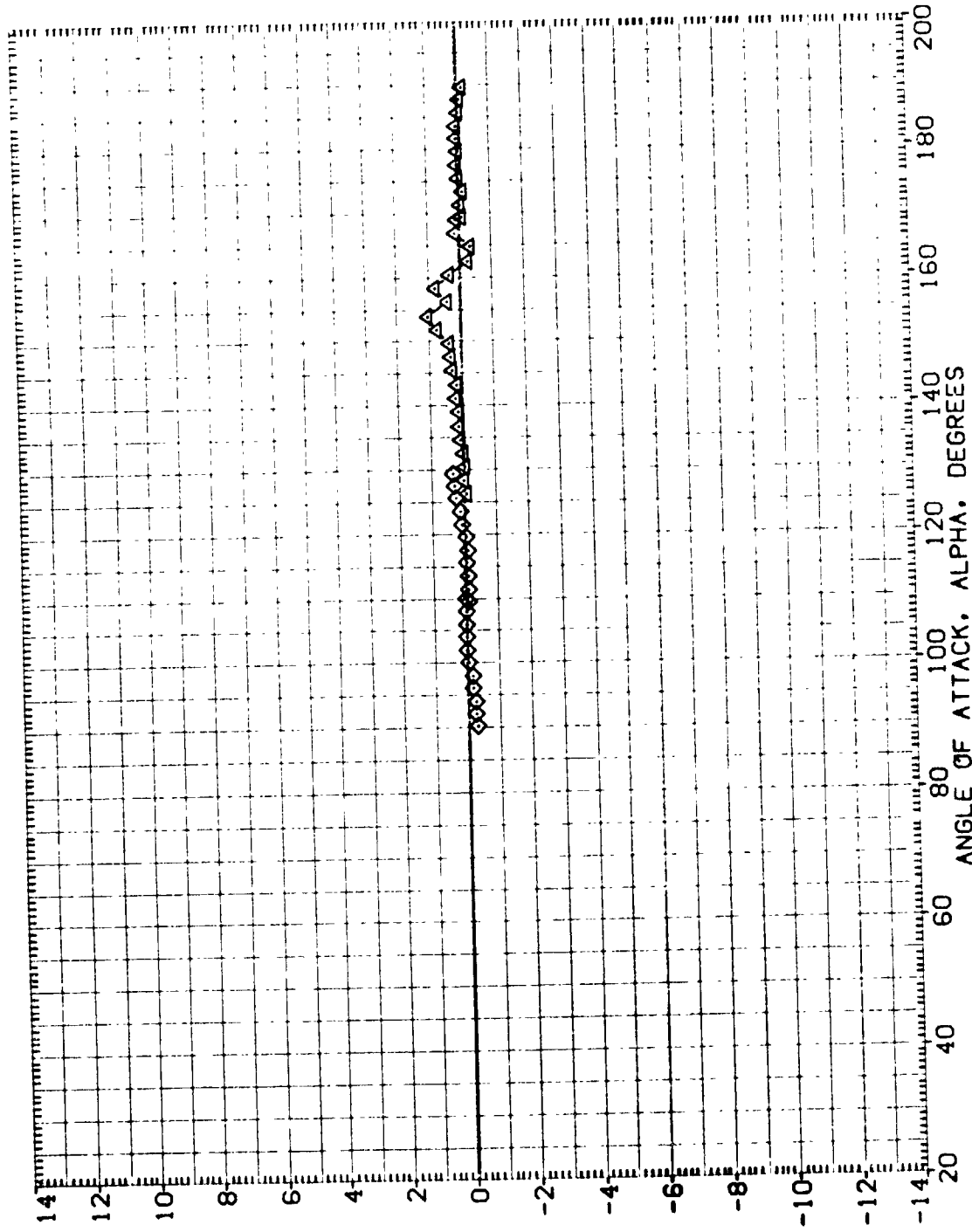


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H407)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(A1H054)	DATA NOT AVAILABLE	180.000	LREF .8000 IN.
(A1H407)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H407)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

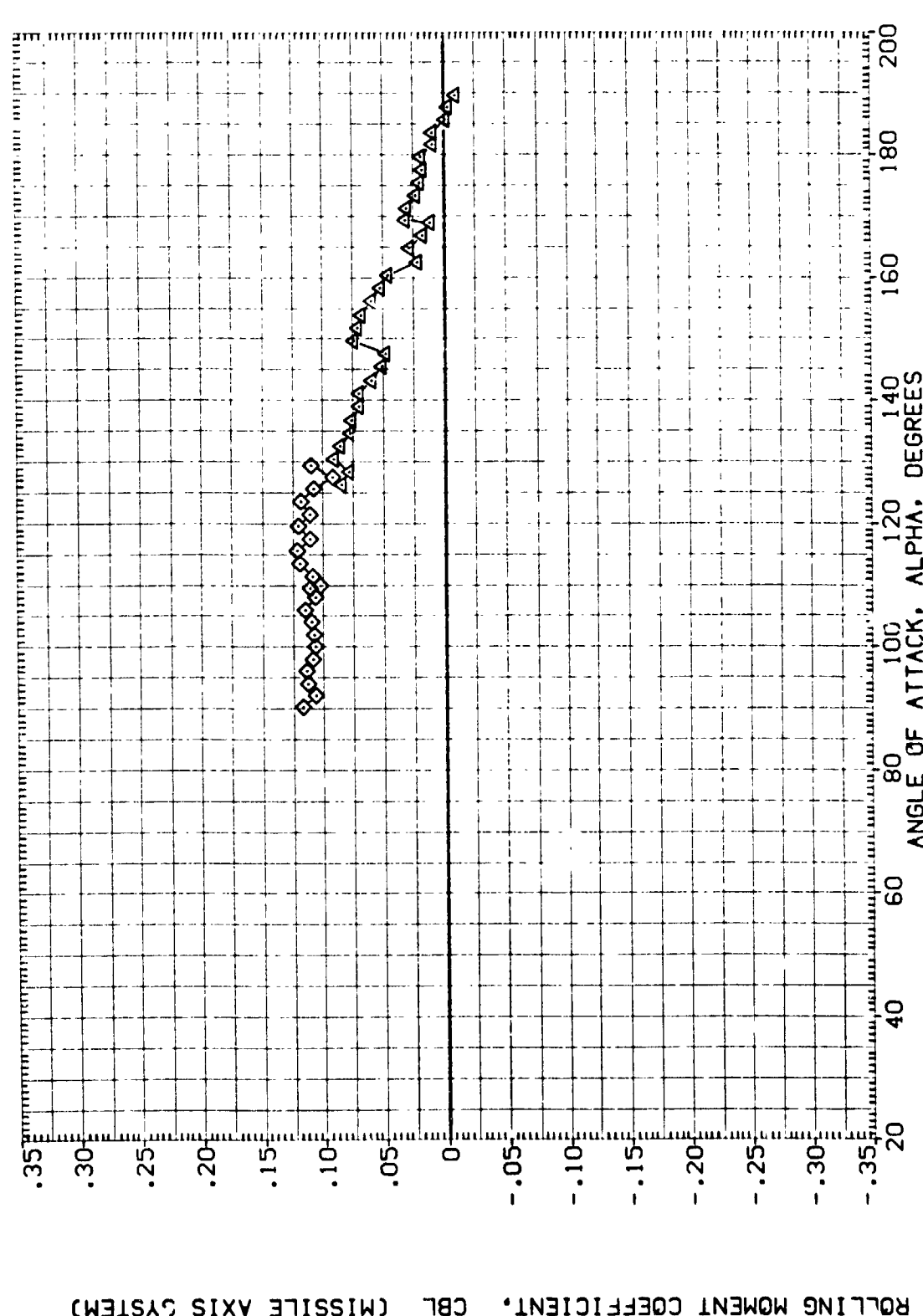


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)  
 (E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ07)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(AIHQ04)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIHQ07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(AIHQ07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

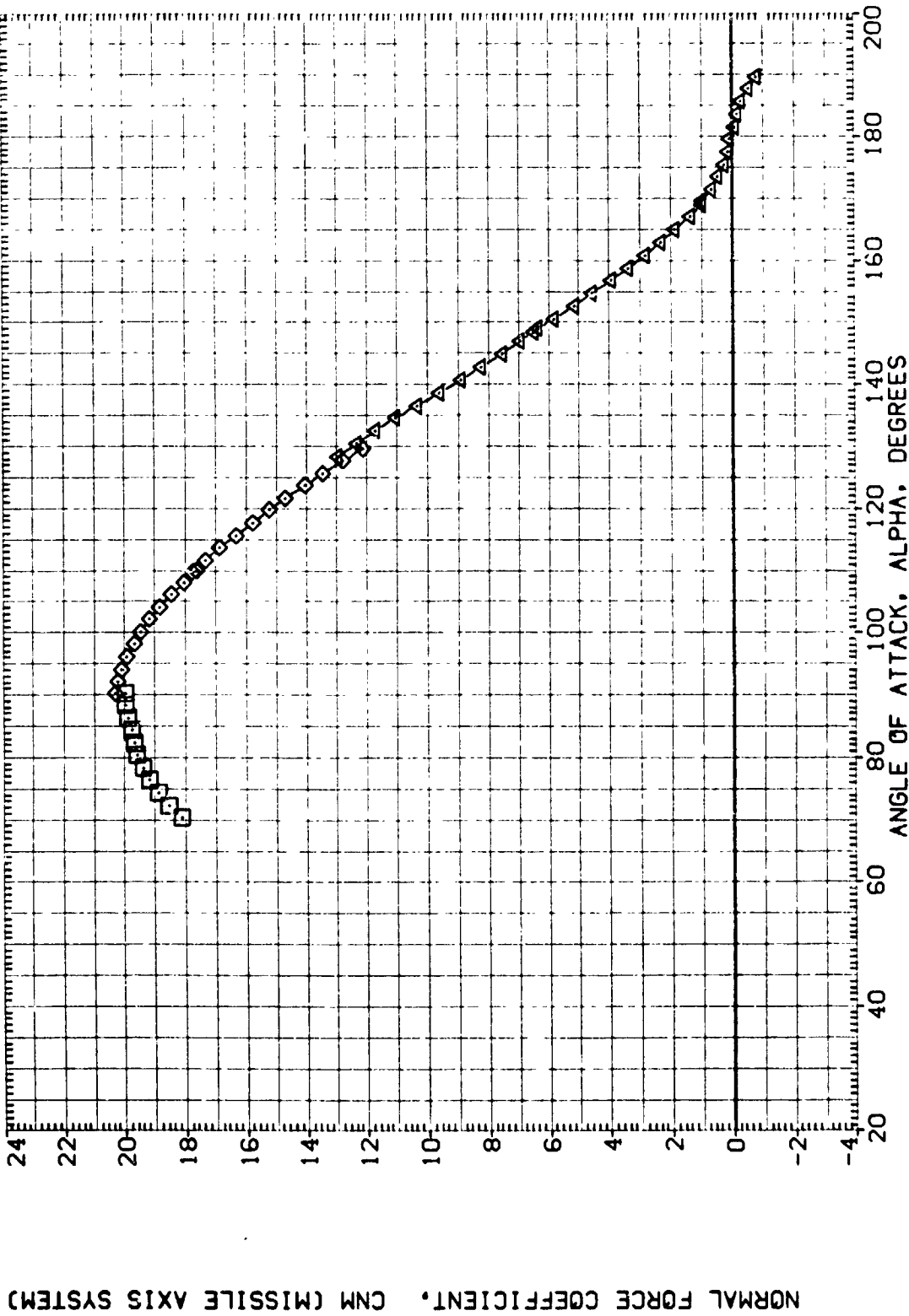


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030
(A1H054)	MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000
(A1H007)	MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000
(A1H007)	MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP 5.7210
			ZMRP .0000
			SCALE .0055

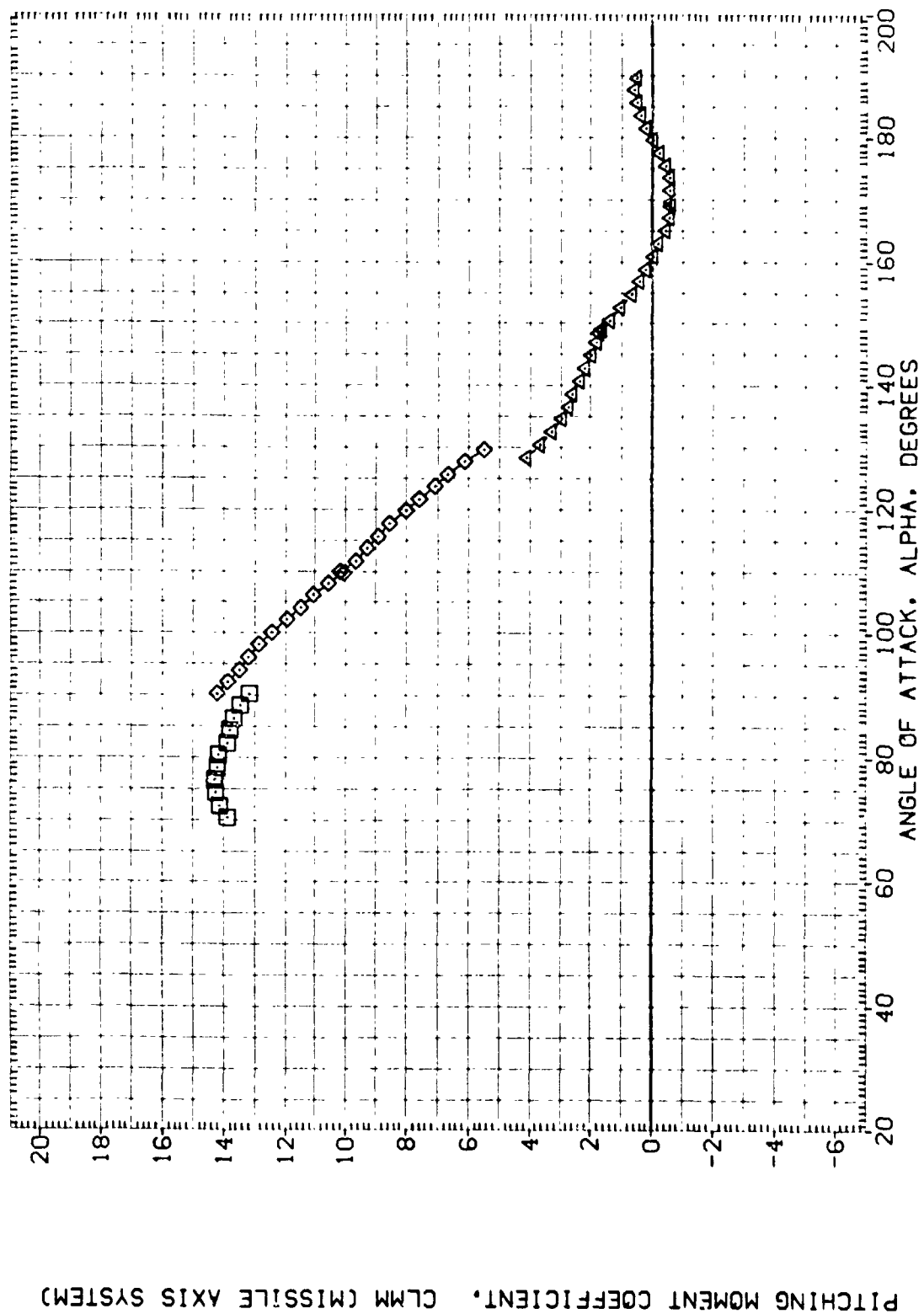


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 180)

(F)MACH = 2.74

DATA SET SYMBOL

(A1H007)

CONFIGURATION DESCRIPTION

DATA NOT AVAILABLE

PHI

180.000

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

MSFC TVT604 (SABF)

SRB WITH ALL PROTUBERANCES

SRB

.5030

IN.

LRB

.8000

IN.

YMRP

5.7210

IN.

ZMRP

.0000

IN.

SCALE

.0055

REFERENCE INFORMATION

SRB

.5030

IN.

LRB

.8000

IN.

YMRP

5.7210

IN.

ZMRP

.0000

IN.

SCALE

.0055

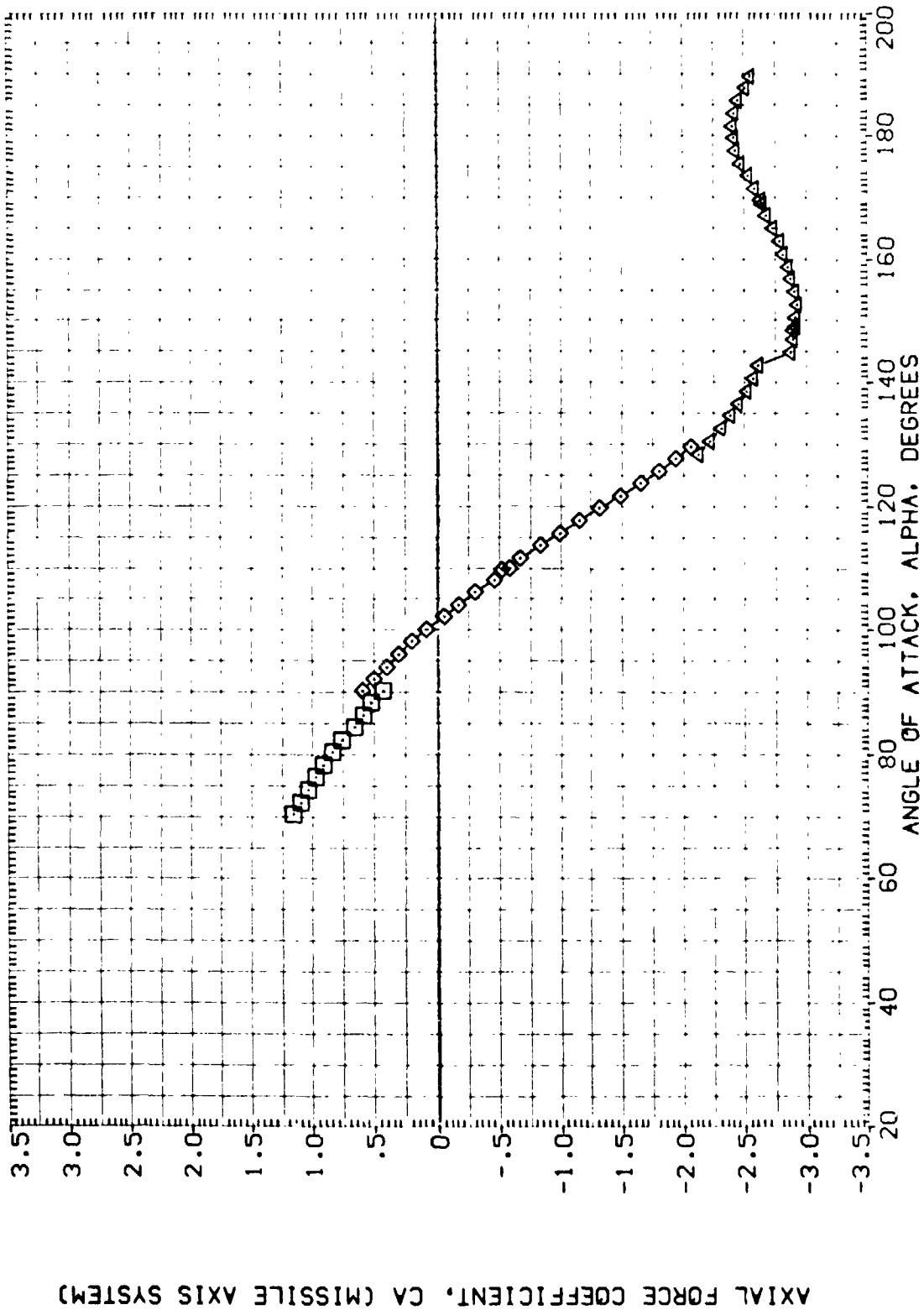


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H007)      DATA NOT AVAILABLE      180.000

(A1H054)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

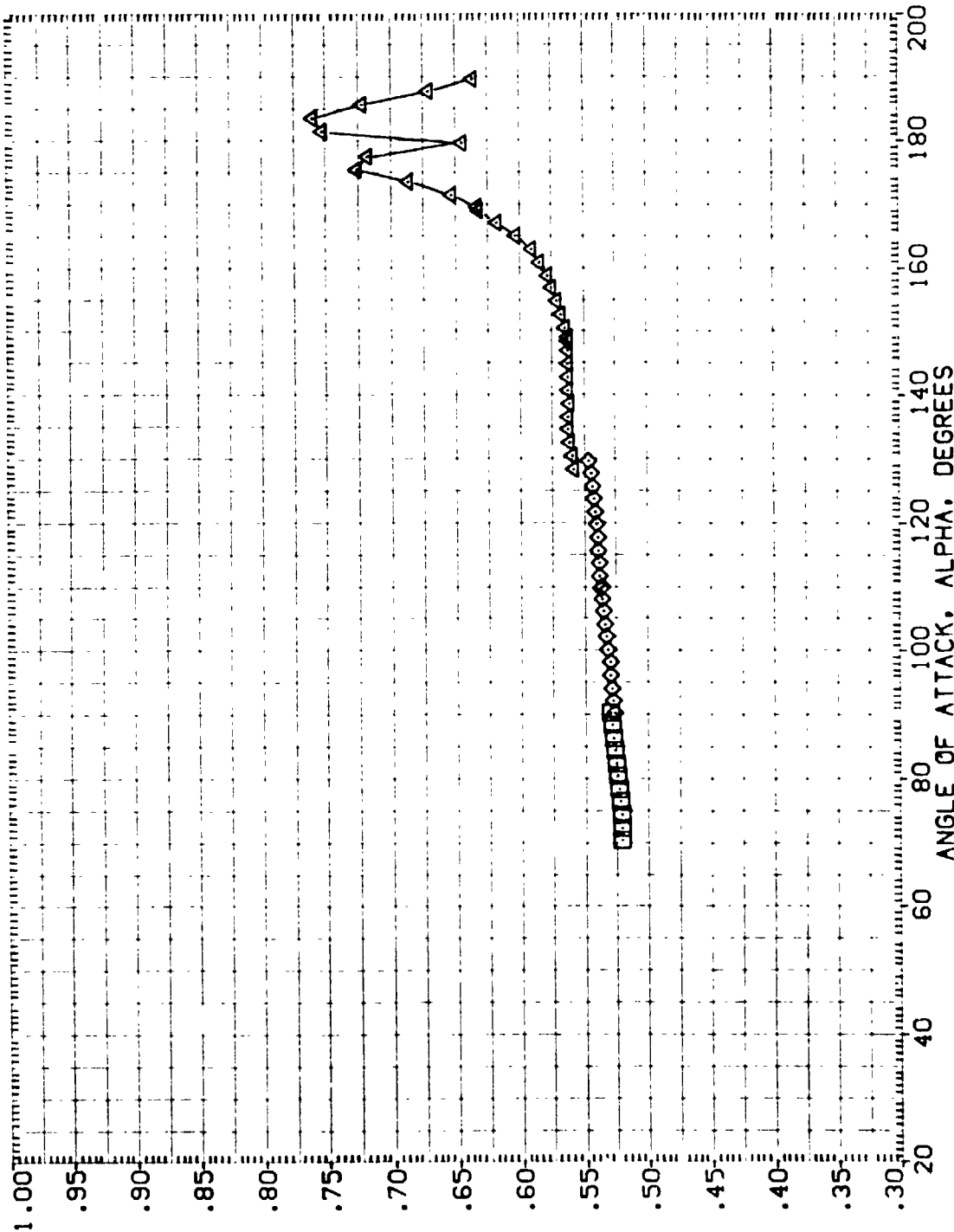


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(F)MACH = 2.74



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHQ07)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(AIHQ04)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIHQ07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(AIHQ07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

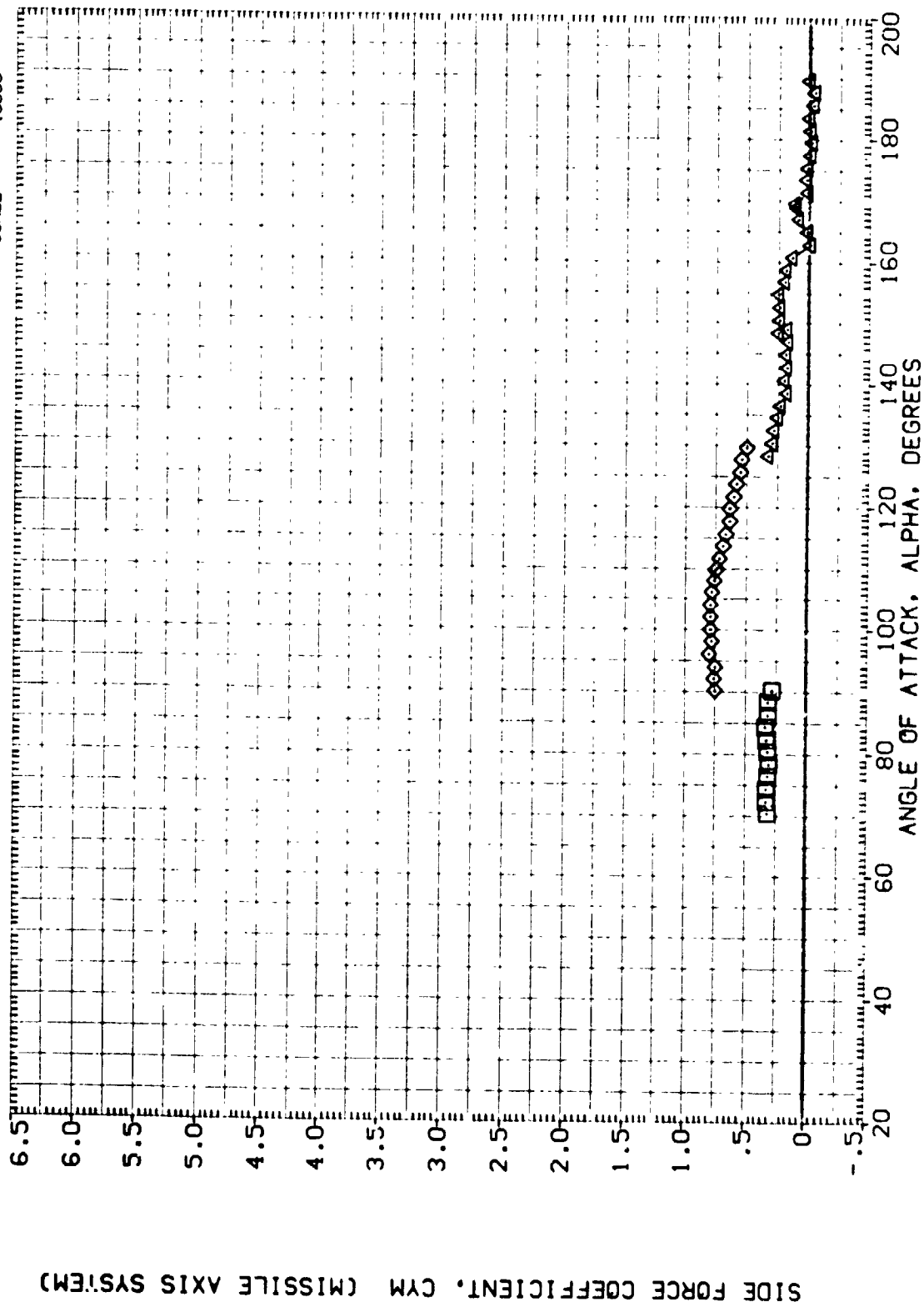


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(F)MACH = 2.74

DATA SET SYMBOL	CONF IGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	DATA NOT AVAILABLE	180.000	SREF .5030 50. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

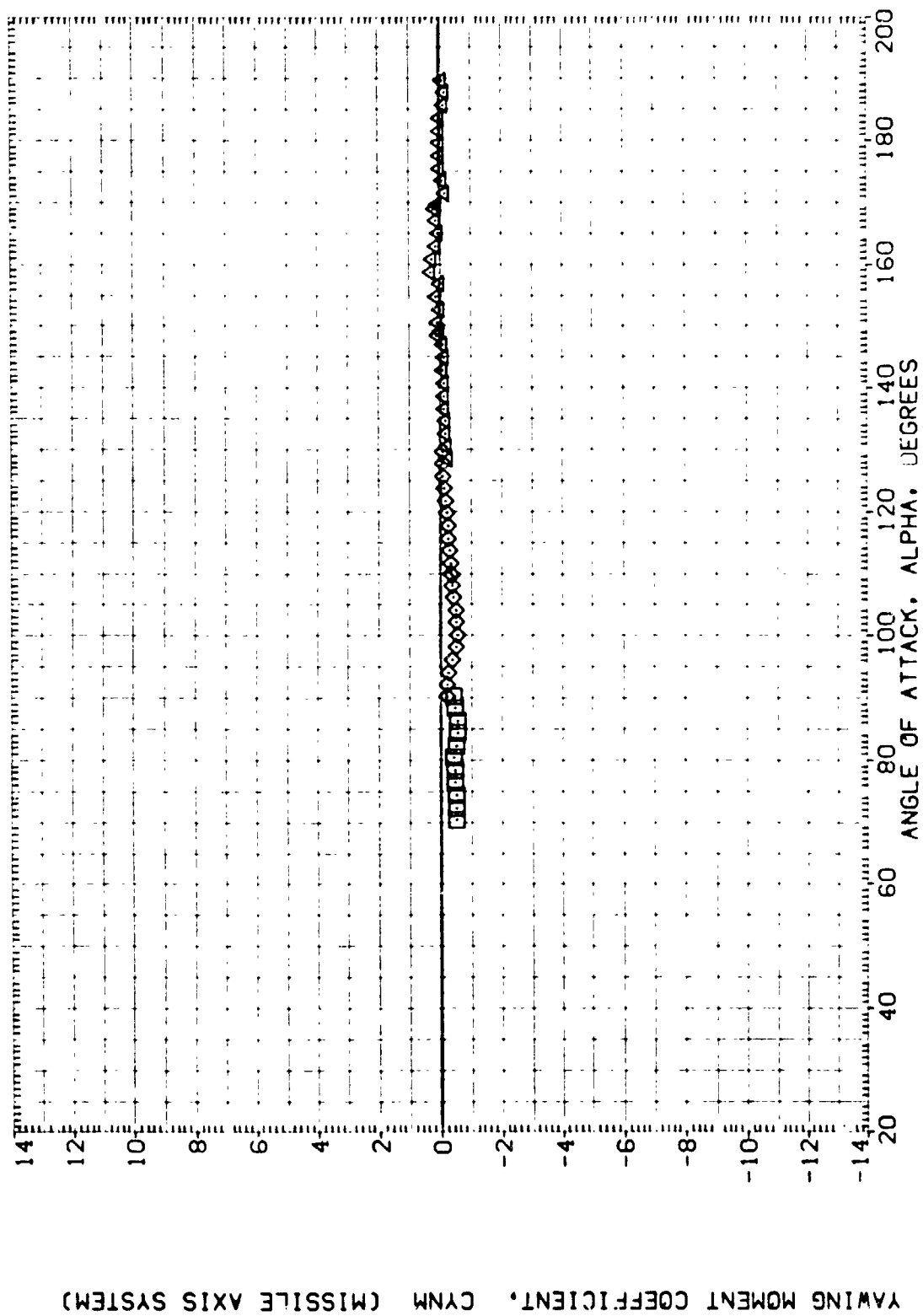


FIGURE 23. STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	DATA NOT AVAILABLE	180.000	SREF .5030 SQ. IN.
(AIH054)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIH007)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(AIH007)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

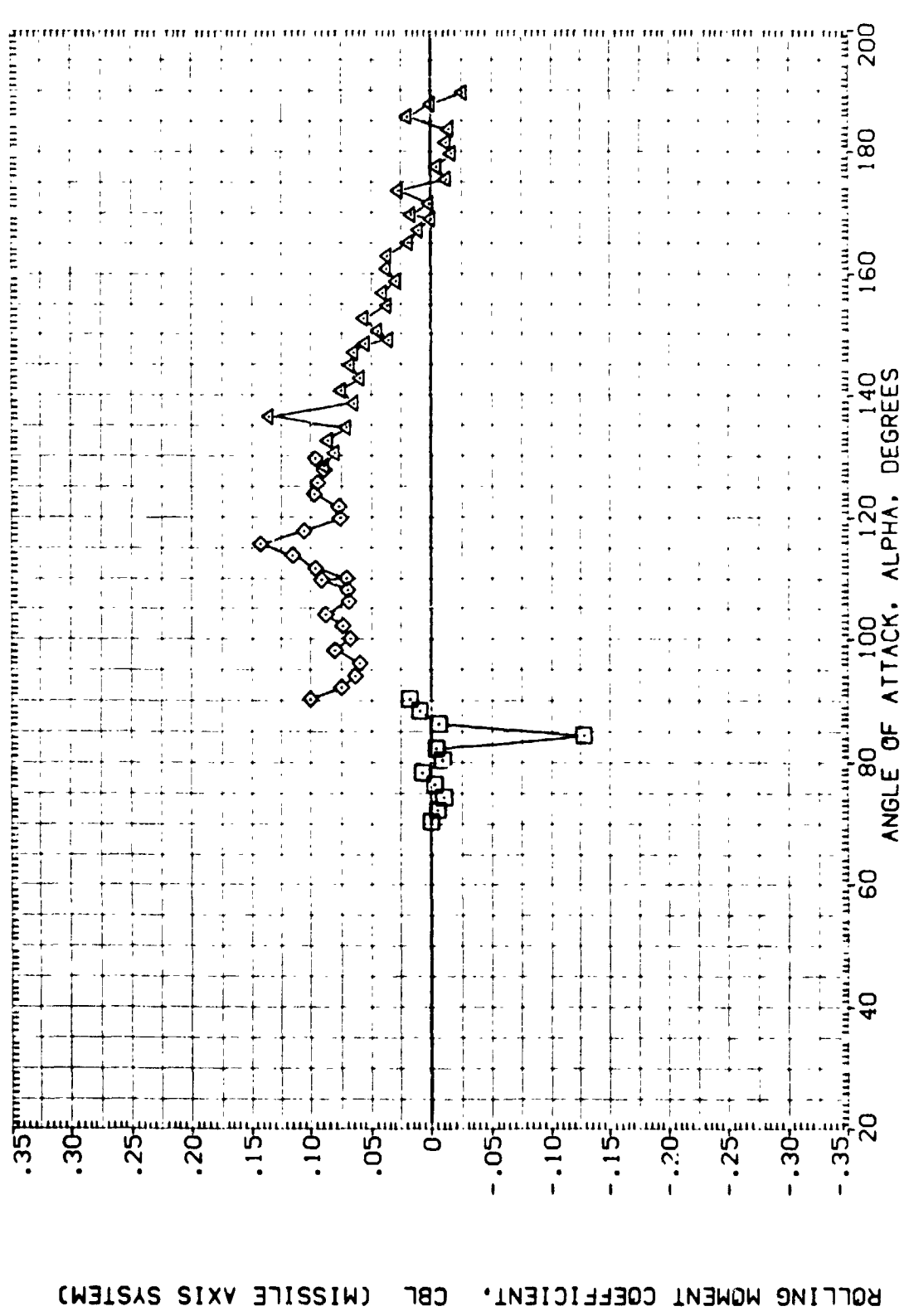


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

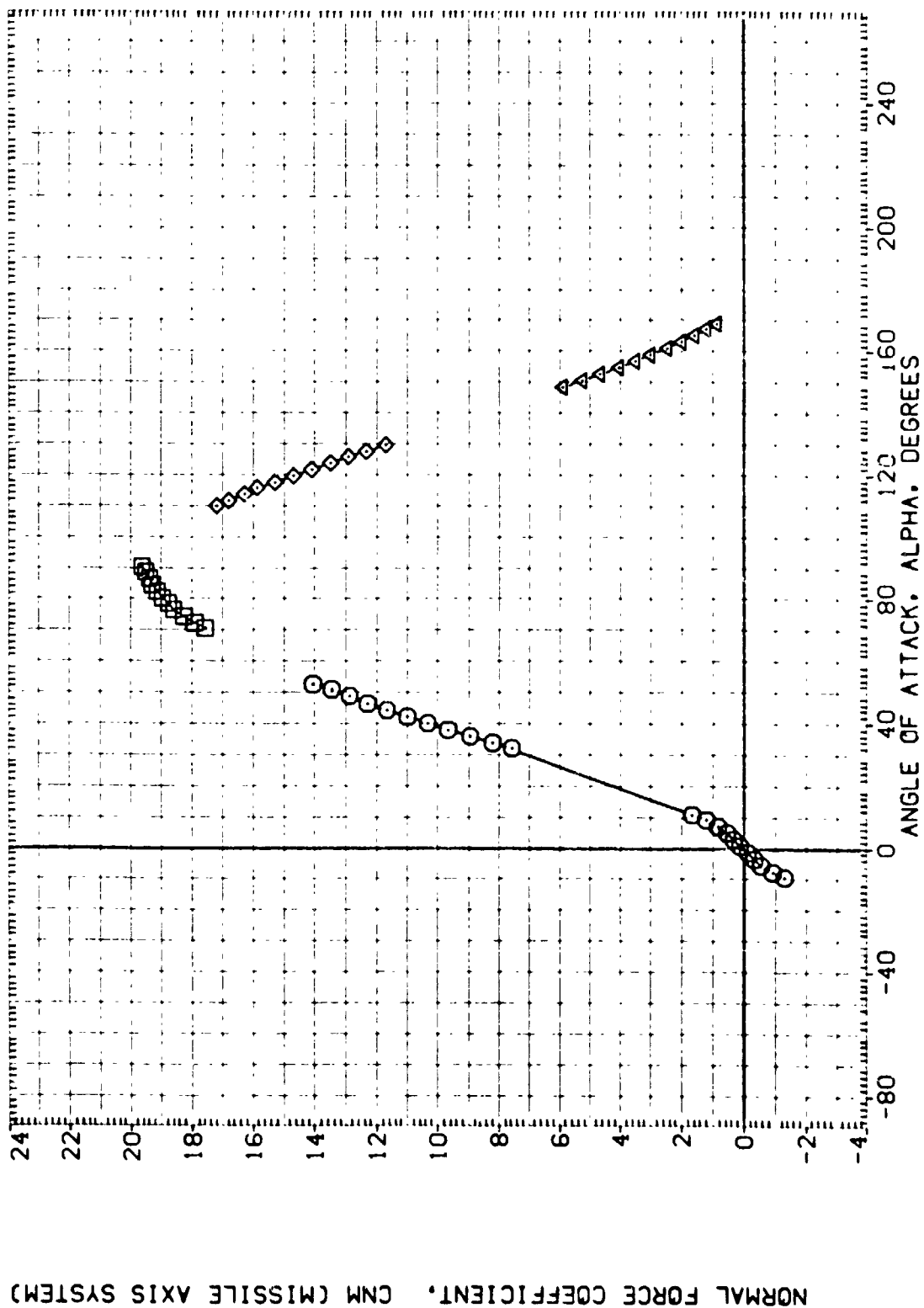


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	HSFC TVT604 (SAIF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 IN.
(A1H054)	HSFC TVT604 (SAIF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	HSFC TVT604 (SAIF) SRB WITH ALL PROTUBERANCES	180.000	GREF .8000 IN.
(A1H007)	HSFC TVT604 (SAIF) SRB WITH ALL PROTUBERANCES	180.000	XMPP 5.7210 IN.
			YMPP .0000 IN.
			ZMPP .0000 IN.
			SCALE .0055

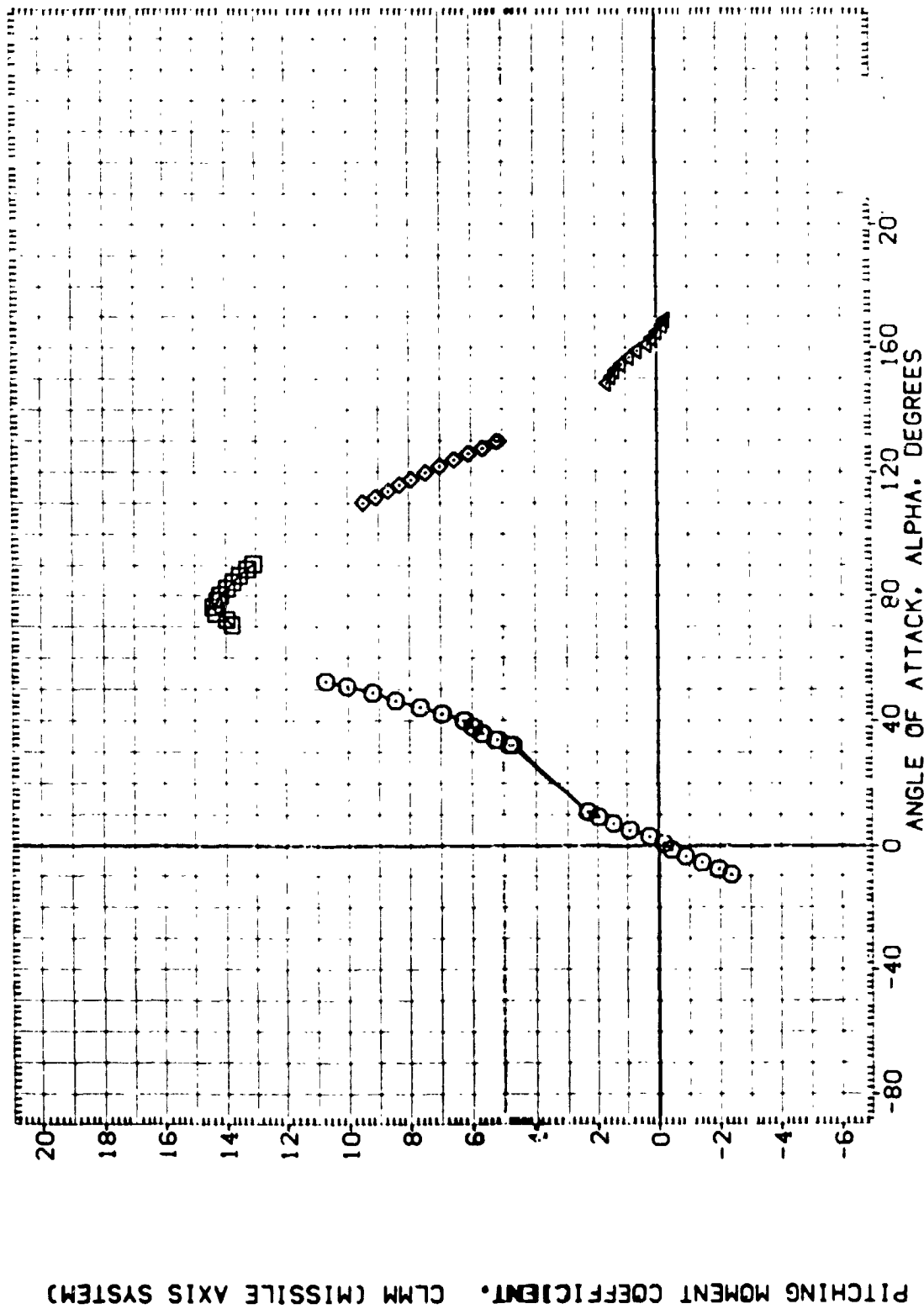


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (A1H007)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHAD7)	MSFC TVT604 (SAEF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(AIH054)	MSFC TVT604 (SAEF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIH007)	MSFC TVT604 (SAEF) SRB WITH ALL PROTUBERANCES	180.000	BRF 5.7210 IN. XS
(AIH007)	MSFC TVT604 (SAEF) SRB WITH ALL PROTUBERANCES	180.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

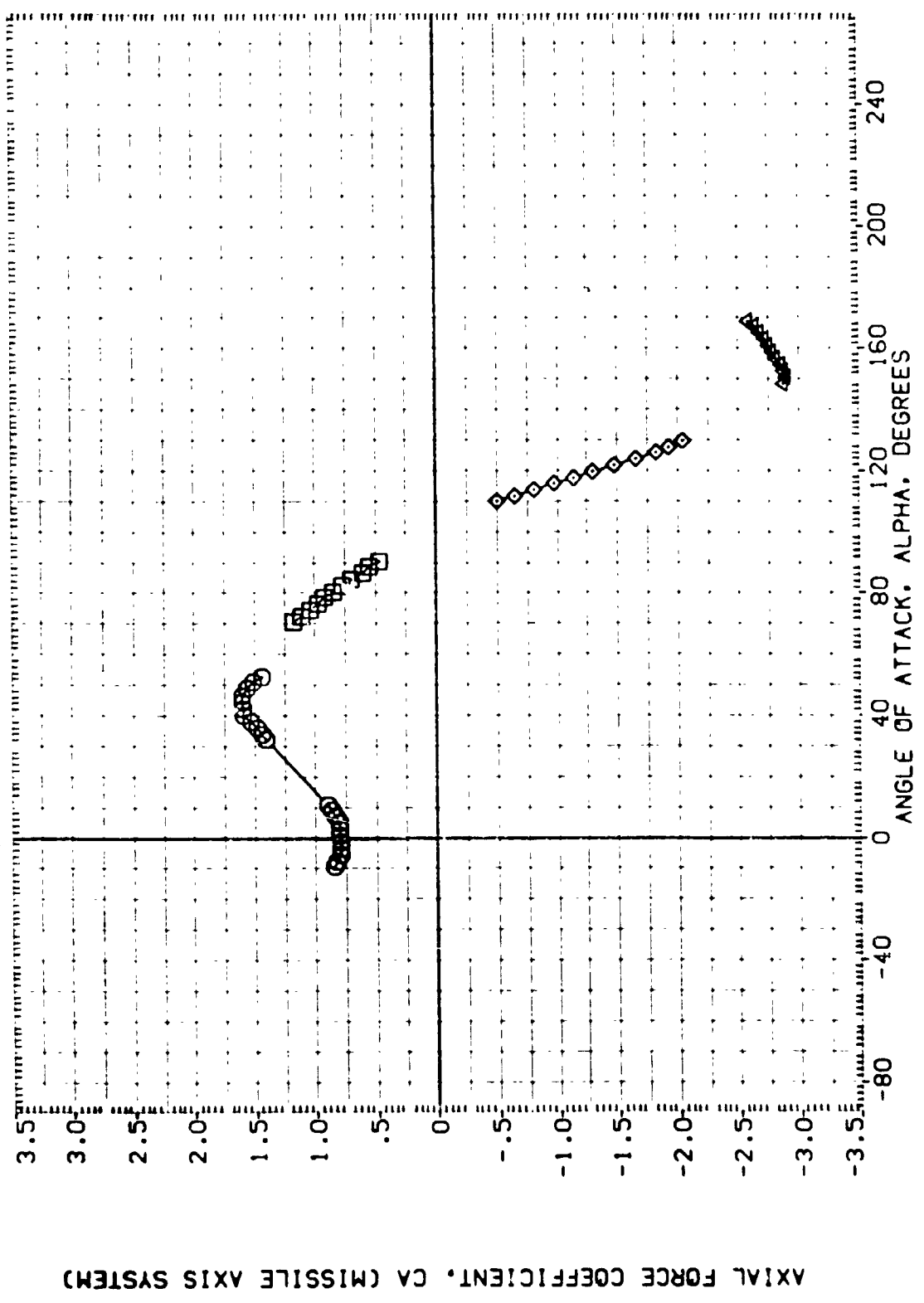


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(A) MACH = 3.48

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

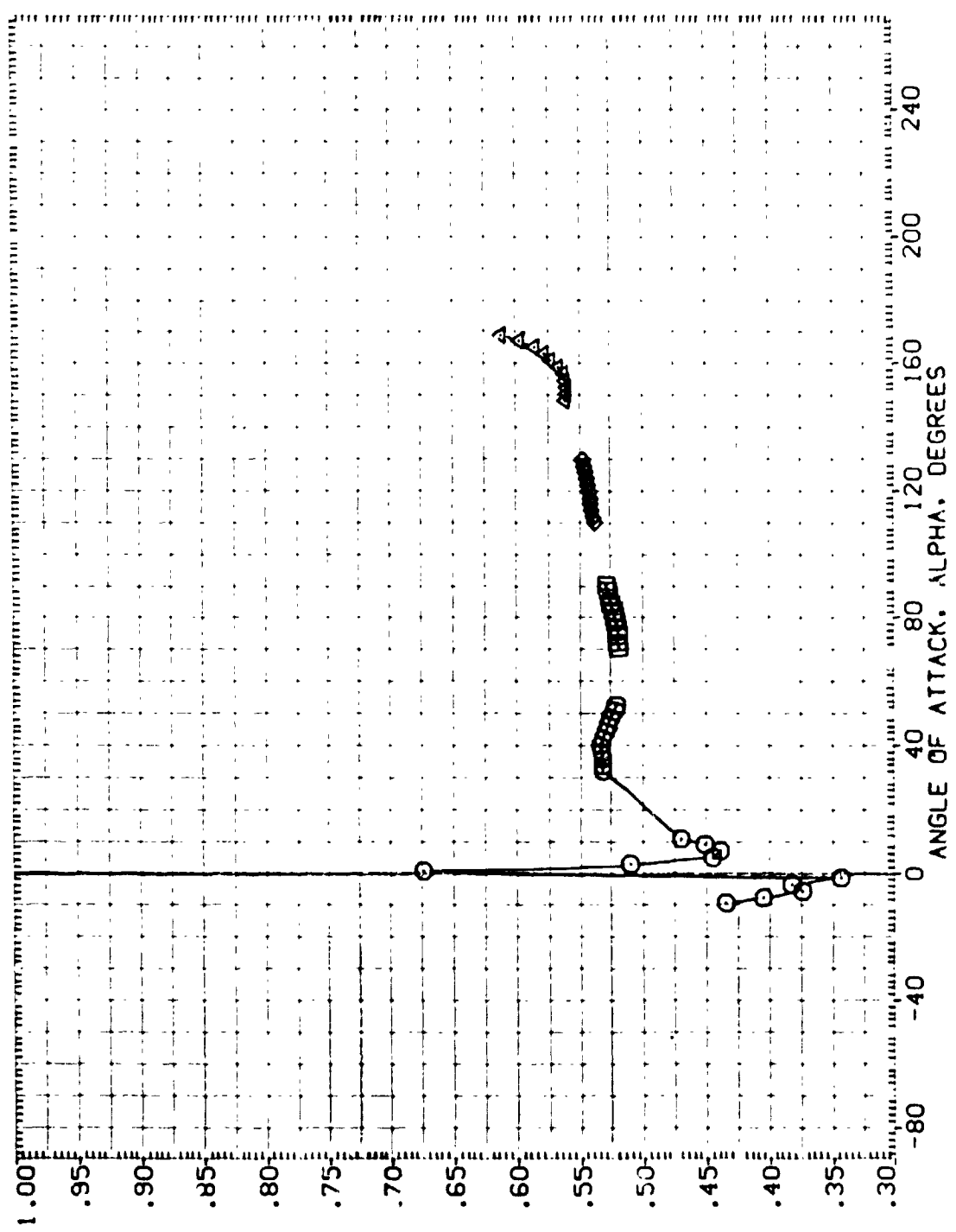


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 IN.
(A1H054)	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LR F .8000 IN.
(A1H07)	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

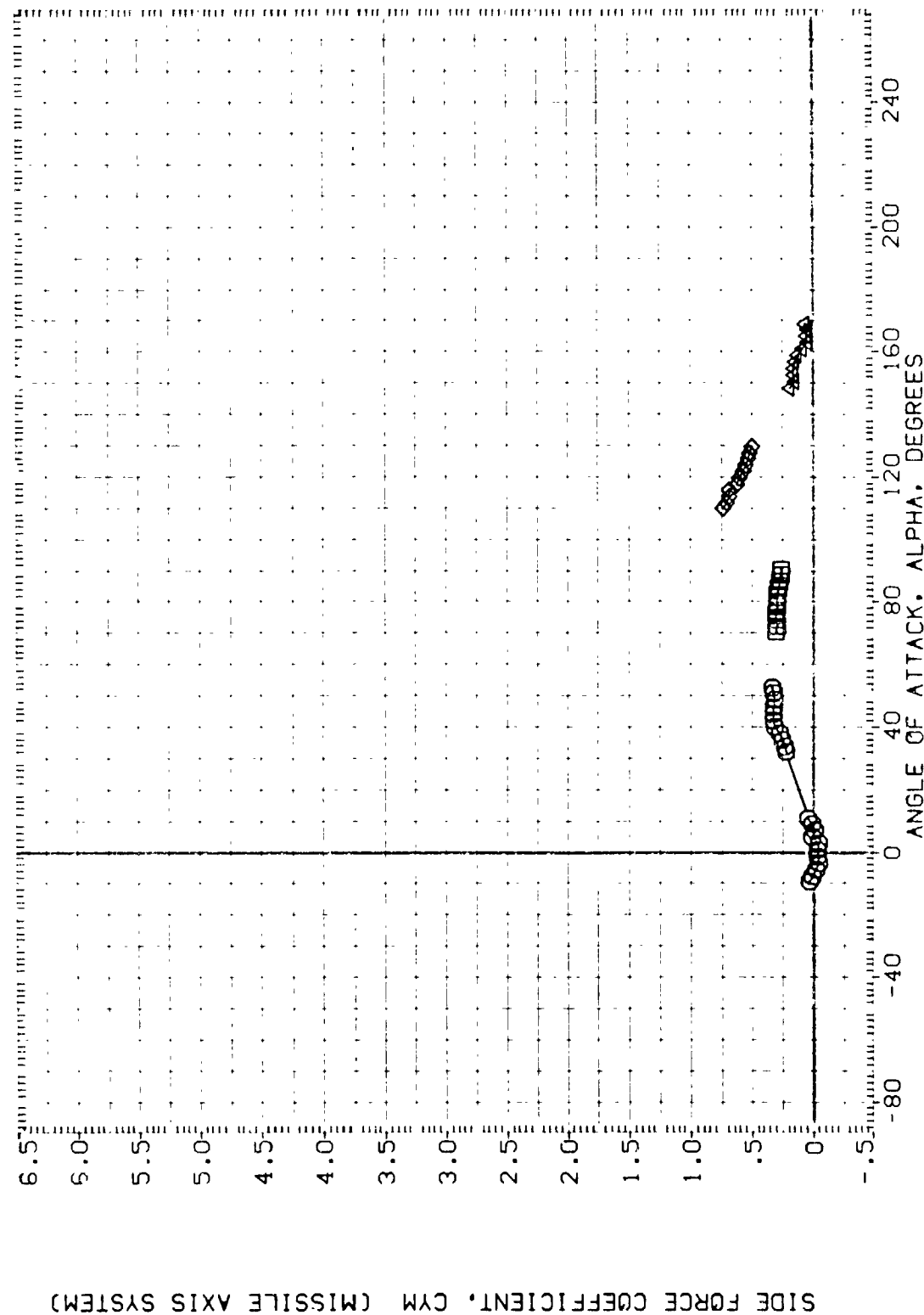


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(A)MACH = 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(A1H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

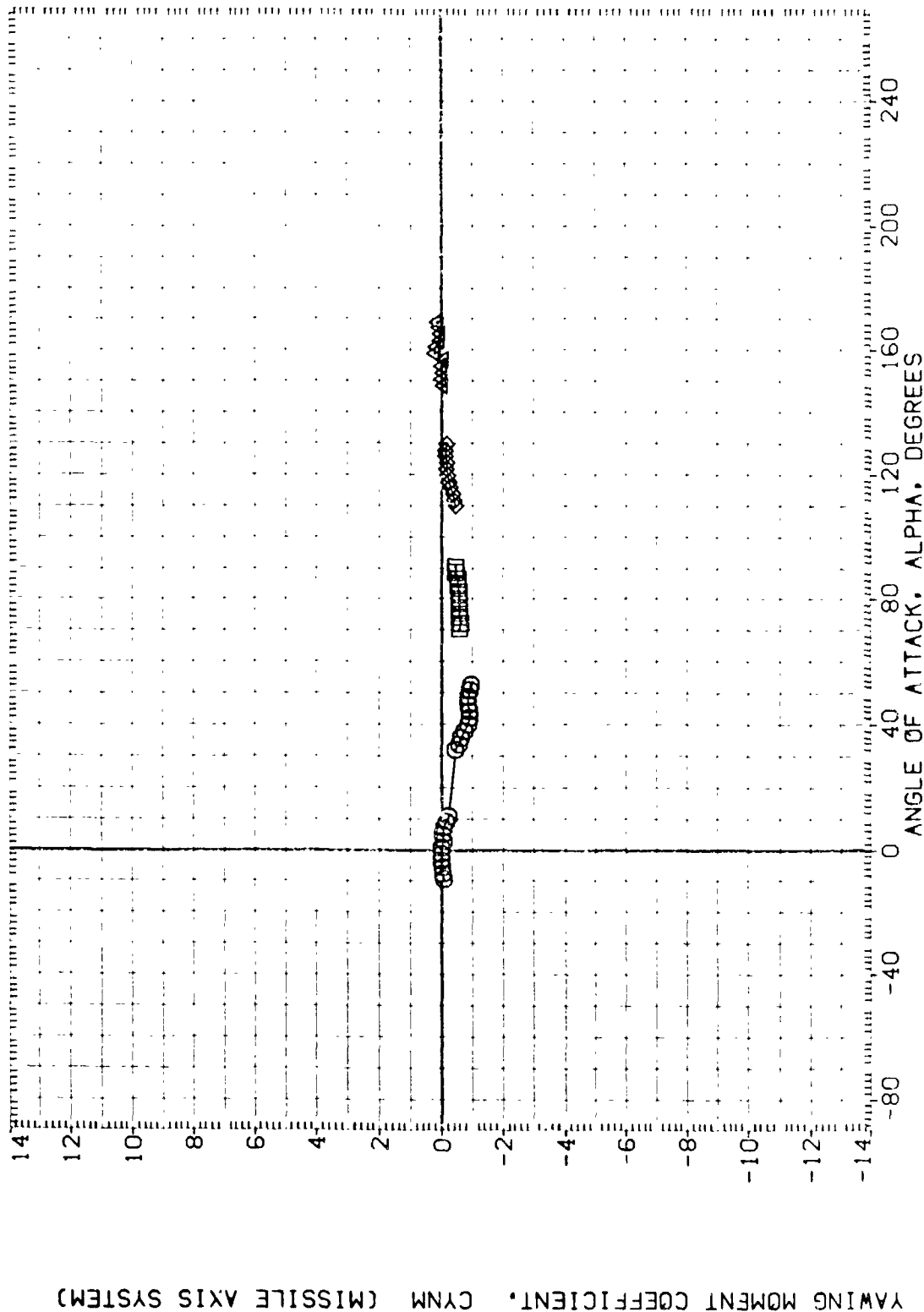


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WALL PROTUBERANCES (PHI = 180)

(A) MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H07)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(A)H054)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A)H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	BREF .8000 IN.
(A)H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

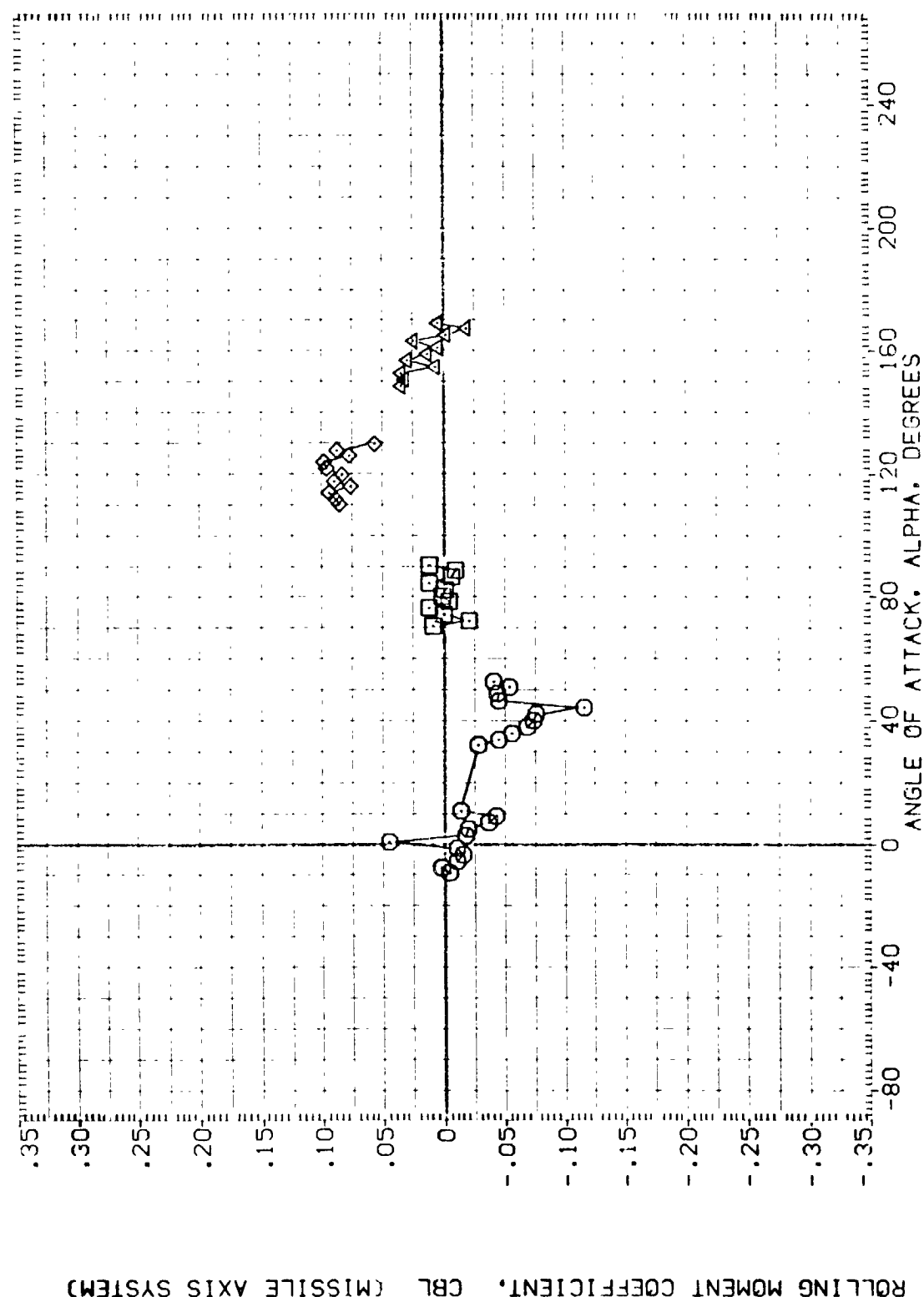


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(AIH004)	DATA NOT AVAILABLE	180.000	LREF .8000 IN.
(AIH007)	DATA NOT AVAILABLE	180.000	BREF .8000 IN.
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

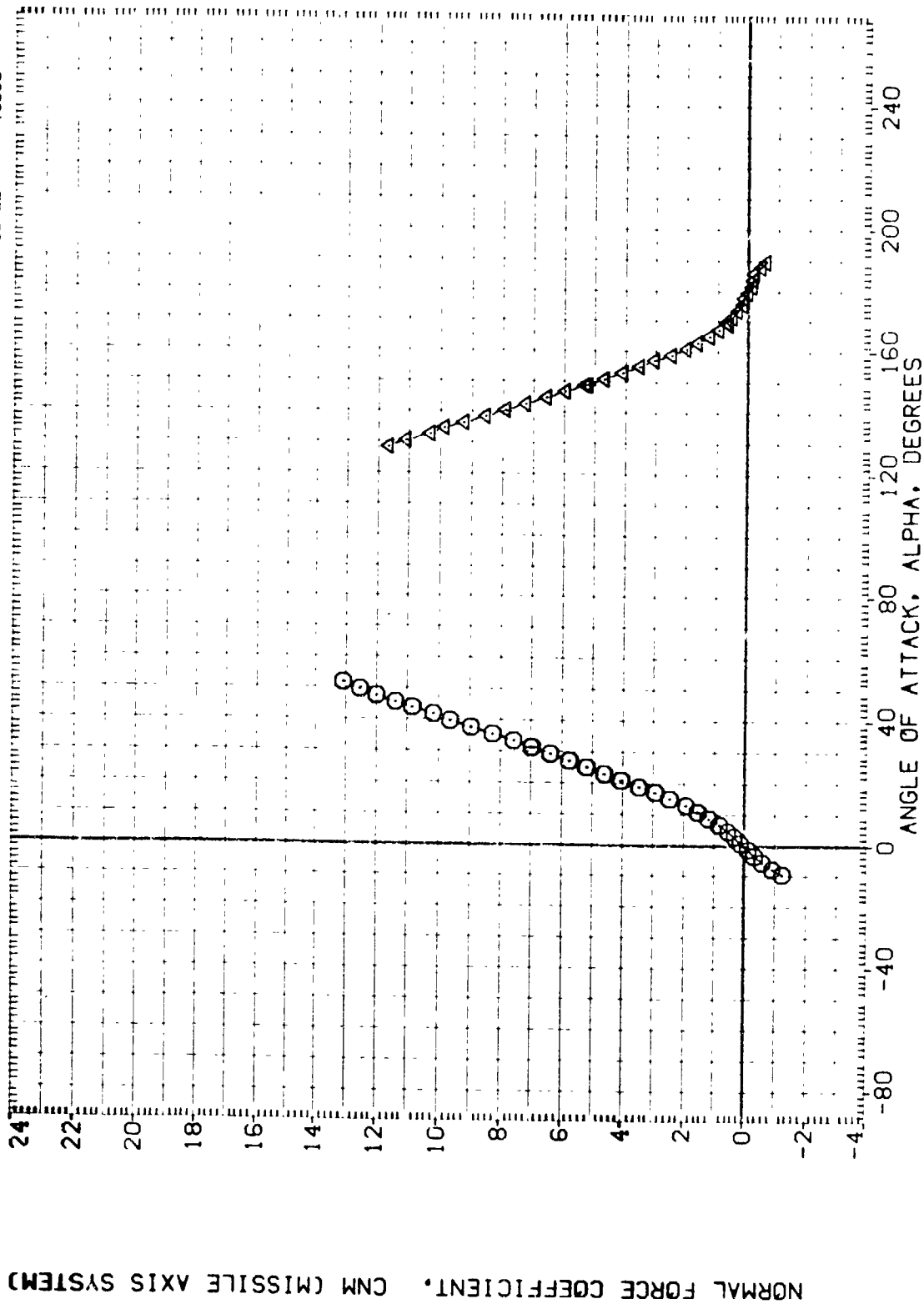


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 180)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1F107)	MSFC TVT604 (S18F) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(A1F154)	DATA NOT AVAILABLE	180.000	LREF .8000 IN.
(A1H007)	DATA NOT AVAILABLE	180.000	BREF .8000 IN.
(A1H007)	MSFC TVT604 (S18F) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

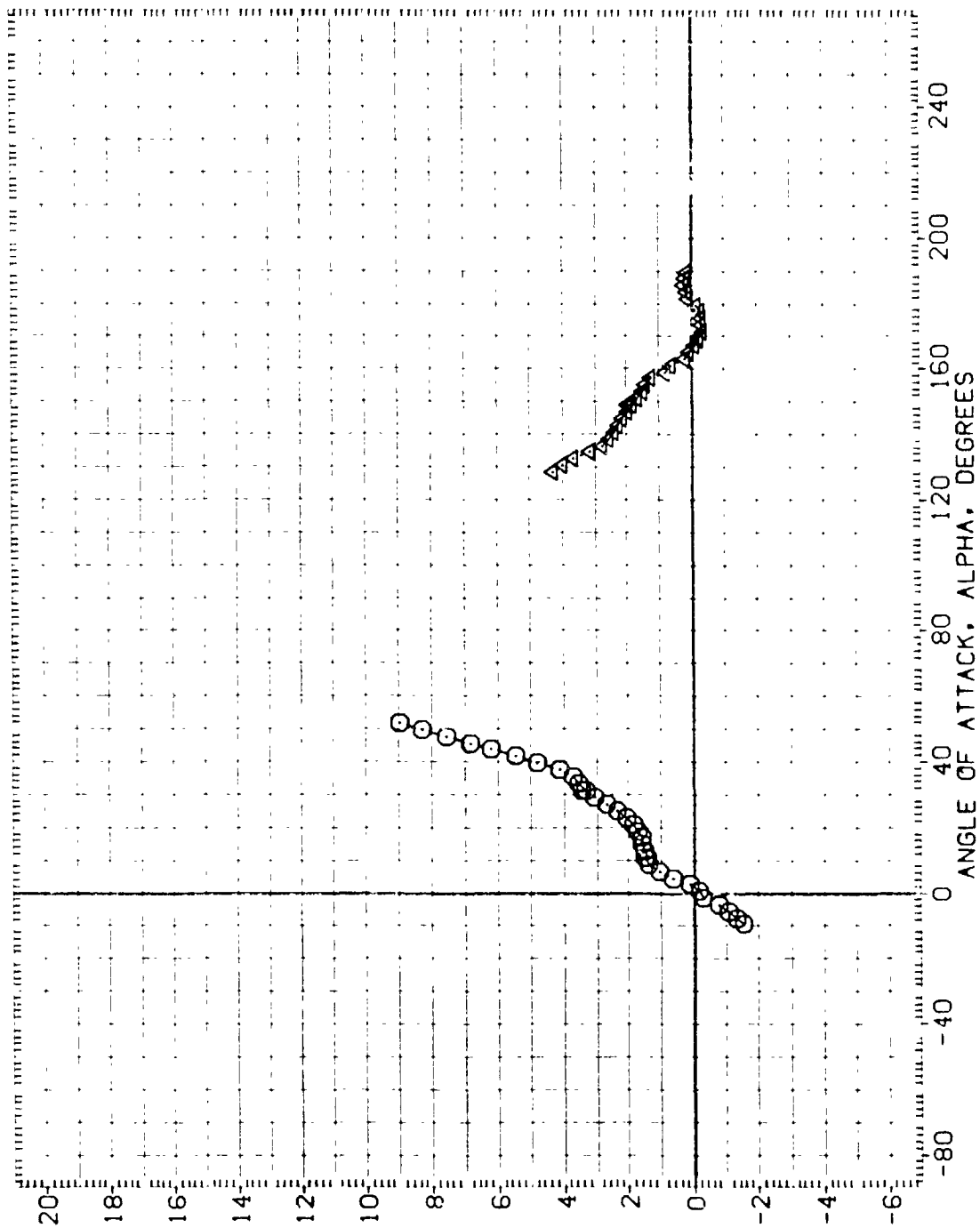


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ.IN.
(AIH054)	DATA NOT AVAILABLE	180.000	LREF .8000 IN.
(AIH007)	DATA NOT AVAILABLE	180.000	BREF .8000 IN.
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

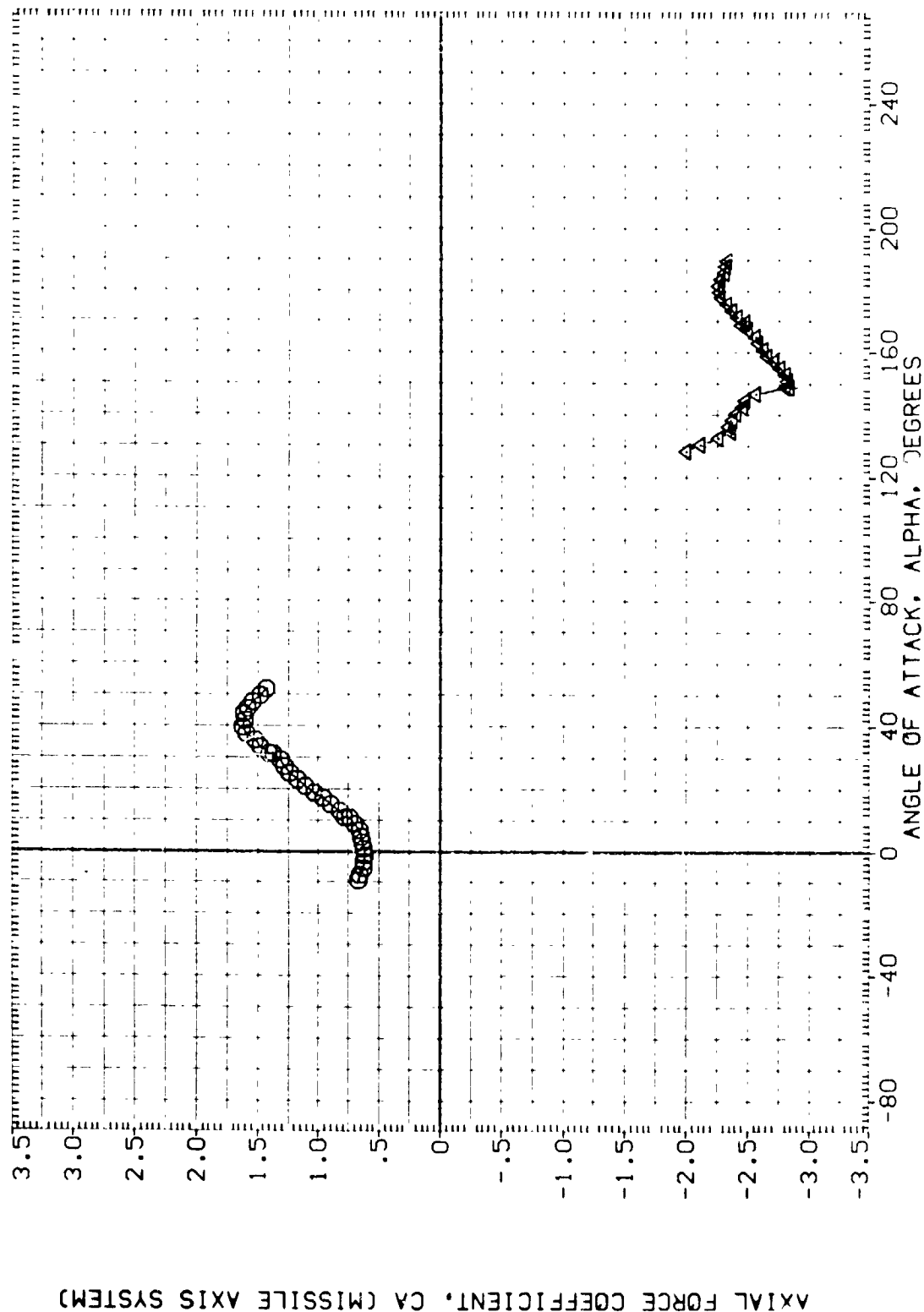


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 180)

(B)MACH = 4.45

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .1000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

PHI  
 180.000  
 180.000  
 180.000

MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES  
 DATA NOT AVAILABLE  
 MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES  
 DATA NOT AVAILABLE

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1HA07) □ MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES  
 (A1H054) □ DATA NOT AVAILABLE  
 (A1HC07) X DATA NOT AVAILABLE  
 (A1H007) X MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES  
 DATA NOT AVAILABLE

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

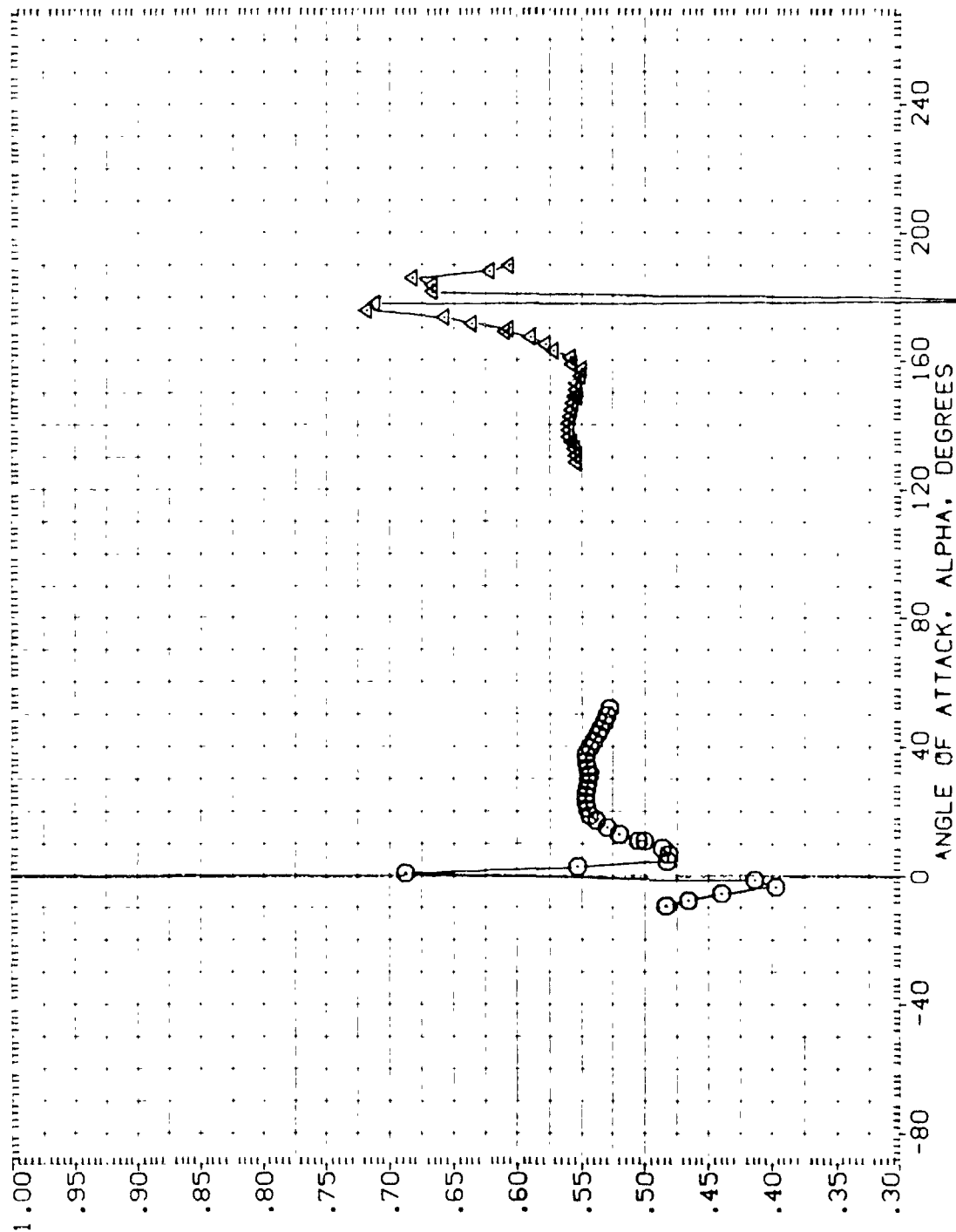


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(B)MAC = 4.45

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H07)	MSFC TVT604 (SABF)	SRR WITH ALL	PROTUBERANCES	180.000		SREF	.5030
(A1H054)	DATA NOT AVAILABLE			180.000		LREF	.8000
(A1H07)	DATA NOT AVAILABLE			180.000		BREF	.8000
(A1H07)	MSFC TVT604 (SABF)	SRR WITH ALL	PROTUBERANCES	180.000		XMRP	5
						YMRP	.7210
						ZMRP	.0000
						SCALE	.0055

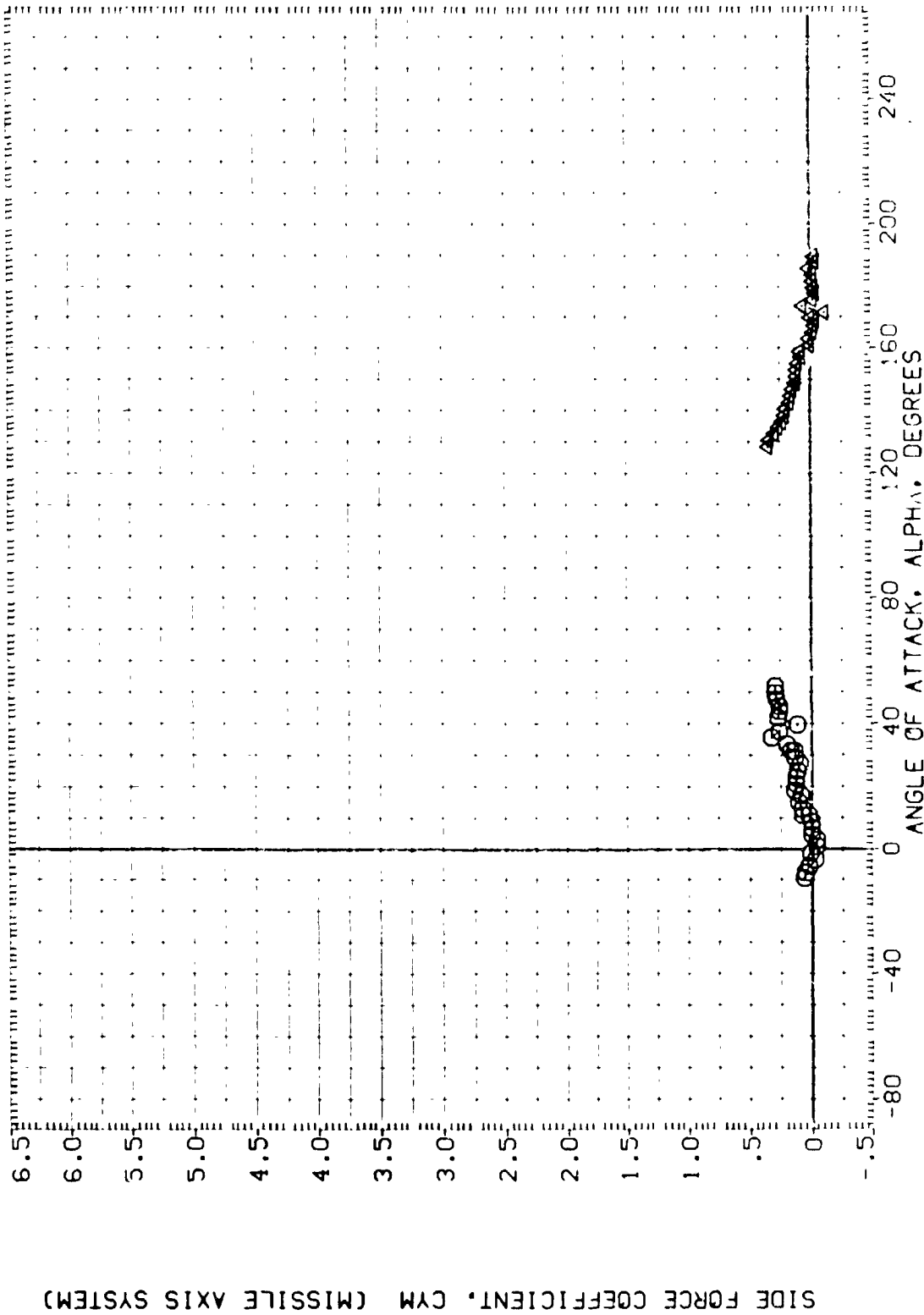


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\Phi = 180^\circ$ )

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SRB .5030 SQ. IN.
(A1H054)	DATA NOT AVAILABLE	180.000	LRBF .8000
(A1H07)	DATA NOT AVAILABLE	180.000	BRBF .8000
(A1H007)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XMRP 5.7210 XS
			YMRP .0000 YS
			ZMRP .0000 ZS
			SCALE .0055

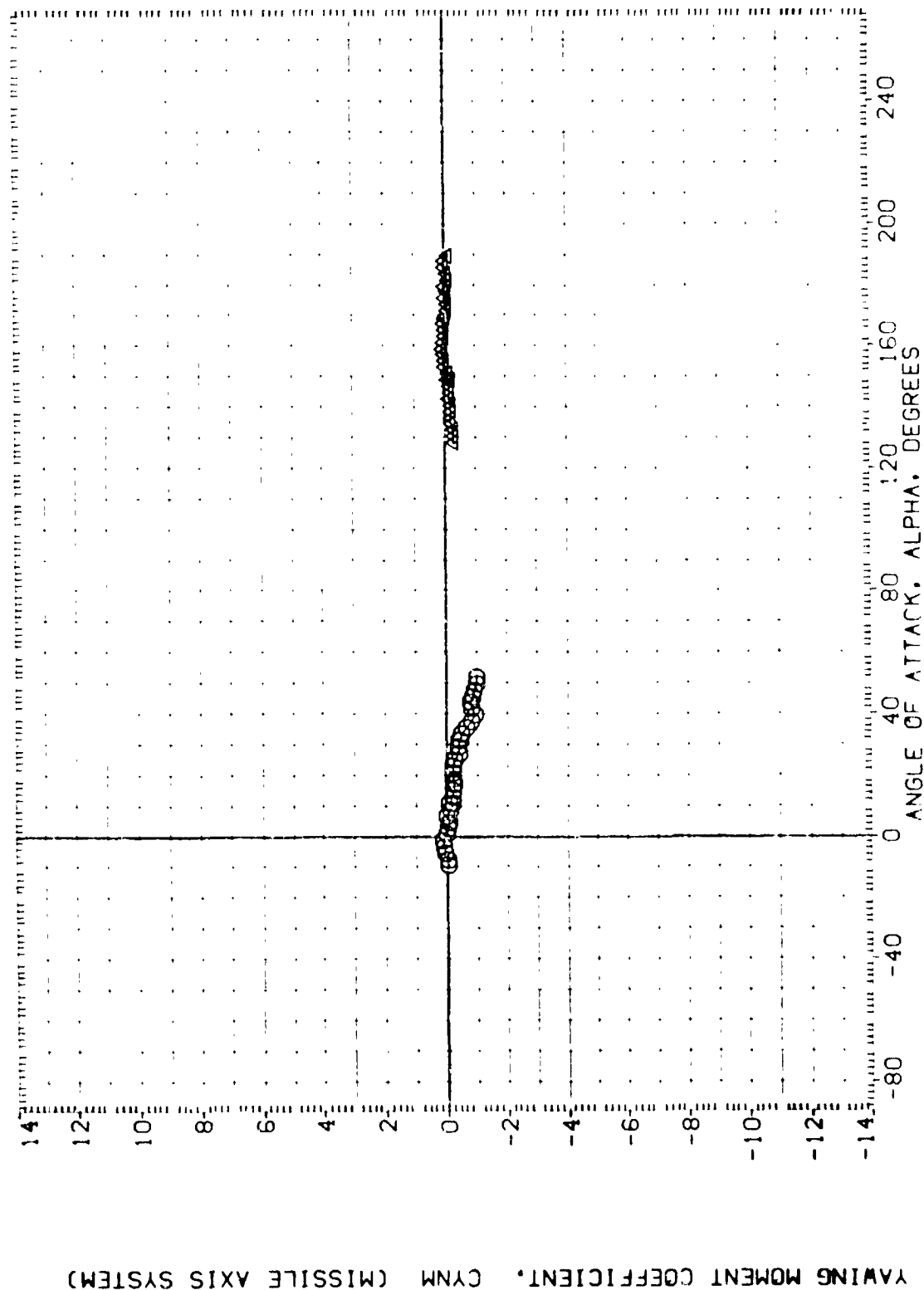


FIGURE 23. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 180)



DATA SET SYMBOL: (A1H007)  
 (A1H054)  
 (A1H07)  
 (A1H007)

PHI  
 180.000  
 180.000  
 180.000  
 180.000

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 DATA NOT AVAILABLE  
 DATA NOT AVAILABLE  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION  
 SREF: 1000  
 LINE: 8000  
 BREF: 5000  
 XMRP: 5.7210  
 YMRP: 10000  
 ZMRP: 10000  
 SCALE: 10055

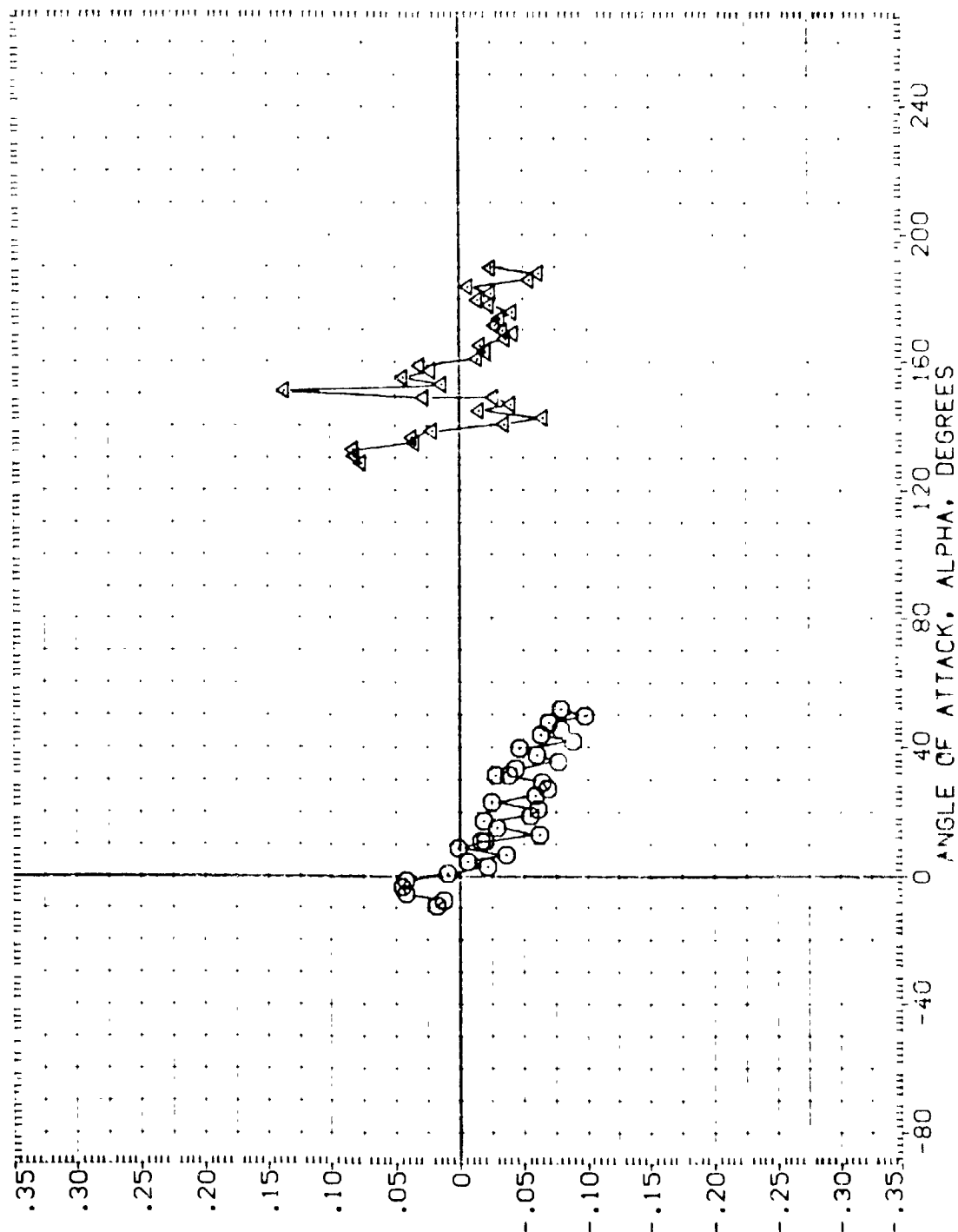


FIGURE 23. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 180)

(B)MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A1H061)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

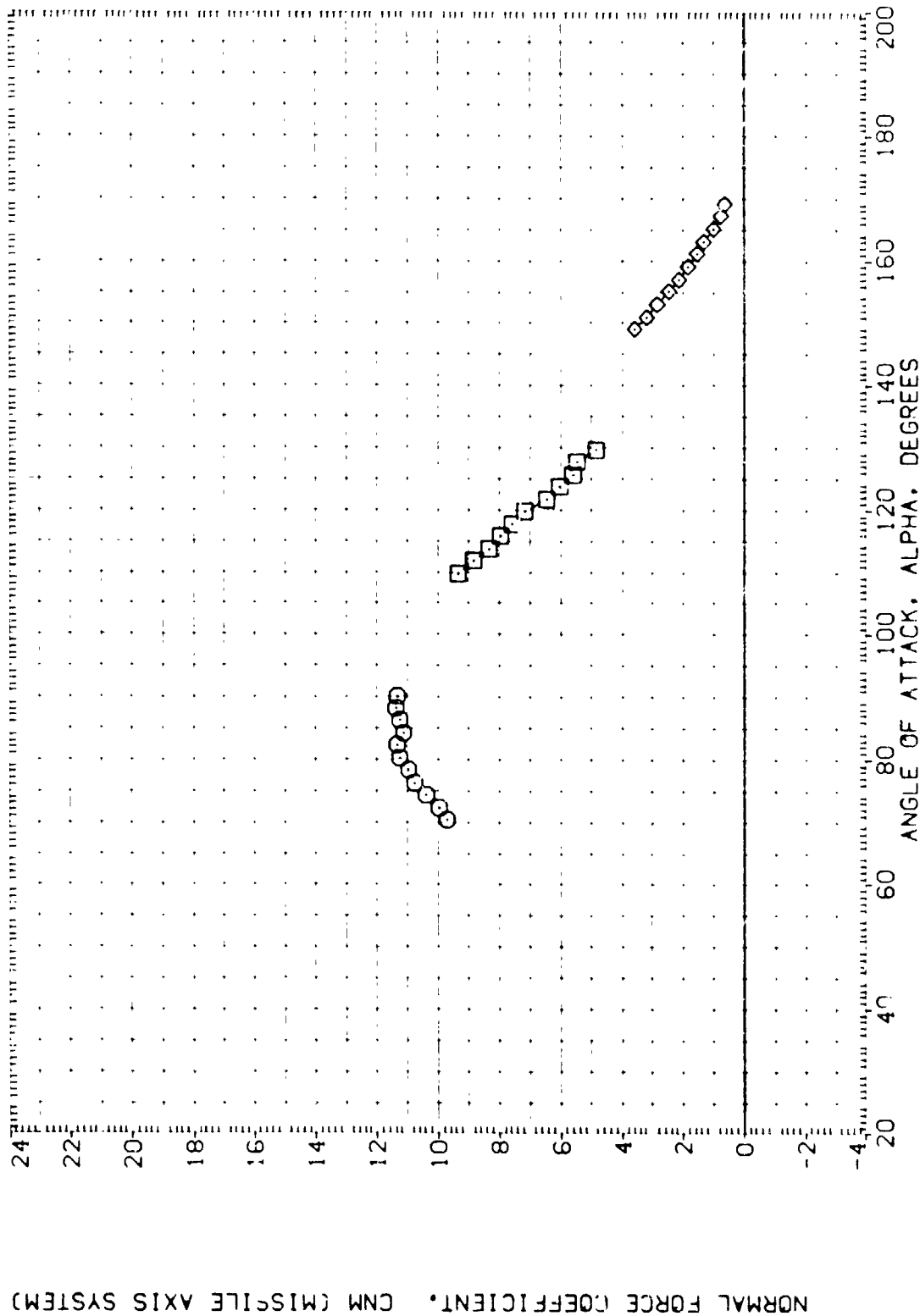


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION	PHI	REFERENCE INFORMATION
(H060)	SFC TVT604 (SAB)	SRB WITH ALL PROTUBERANCES	225.000	SRF .5000
(A1H061)	SFC TVT604 (SAB)	SRB WITH ALL PROTUBERANCES	225.000	LREF .8000
(A1H062)	SFC TVT604 (SAB)	SRB WITH ALL PROTUBERANCES	225.000	BRF .8000
				5.7210
				0.0000
				0.0000
				0.0000
				0.0055

PITCHING MOMENT COEFFICIENT, CLPM (MISSILE AXIS SYSTEM)

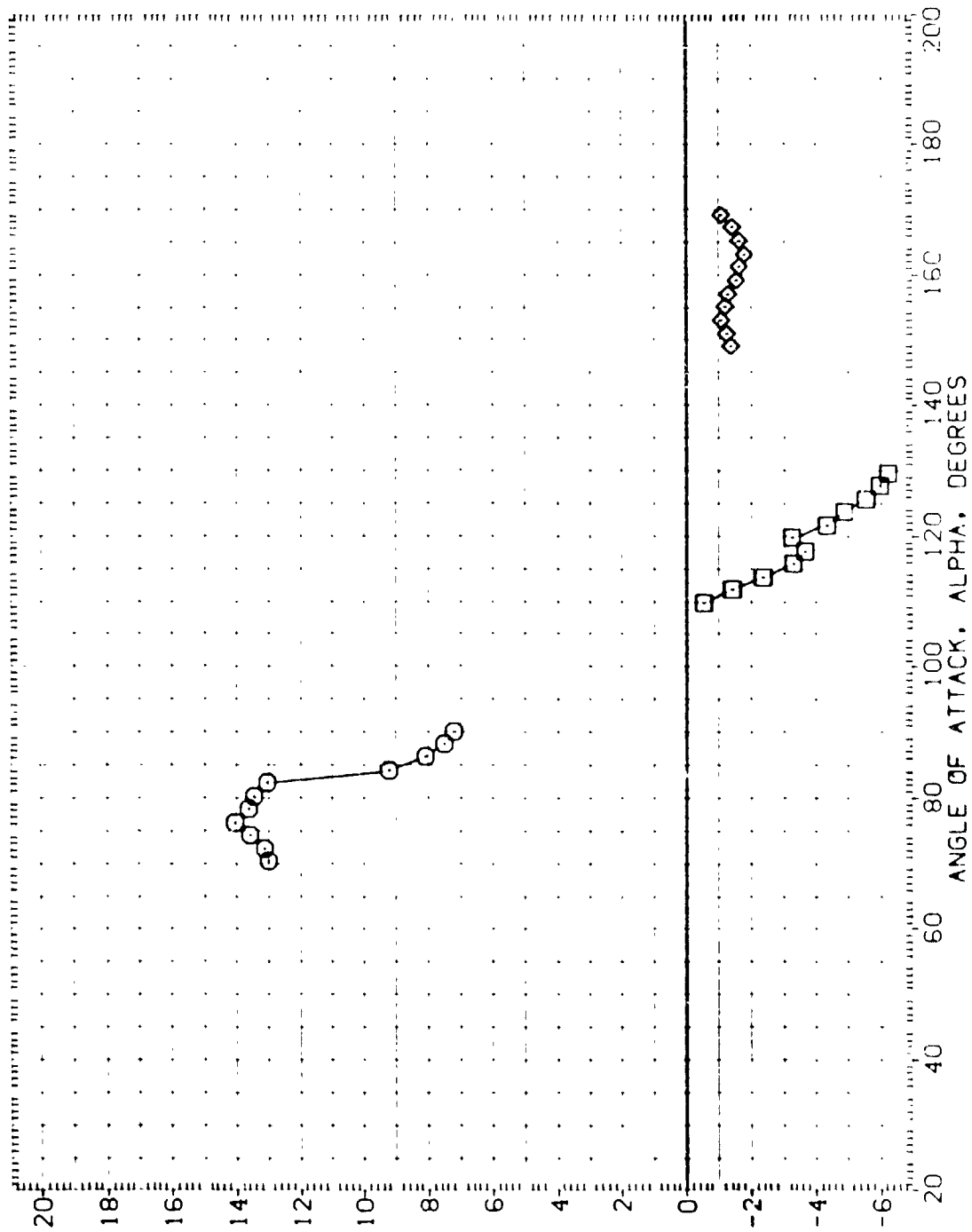


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(A) MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A1H061)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

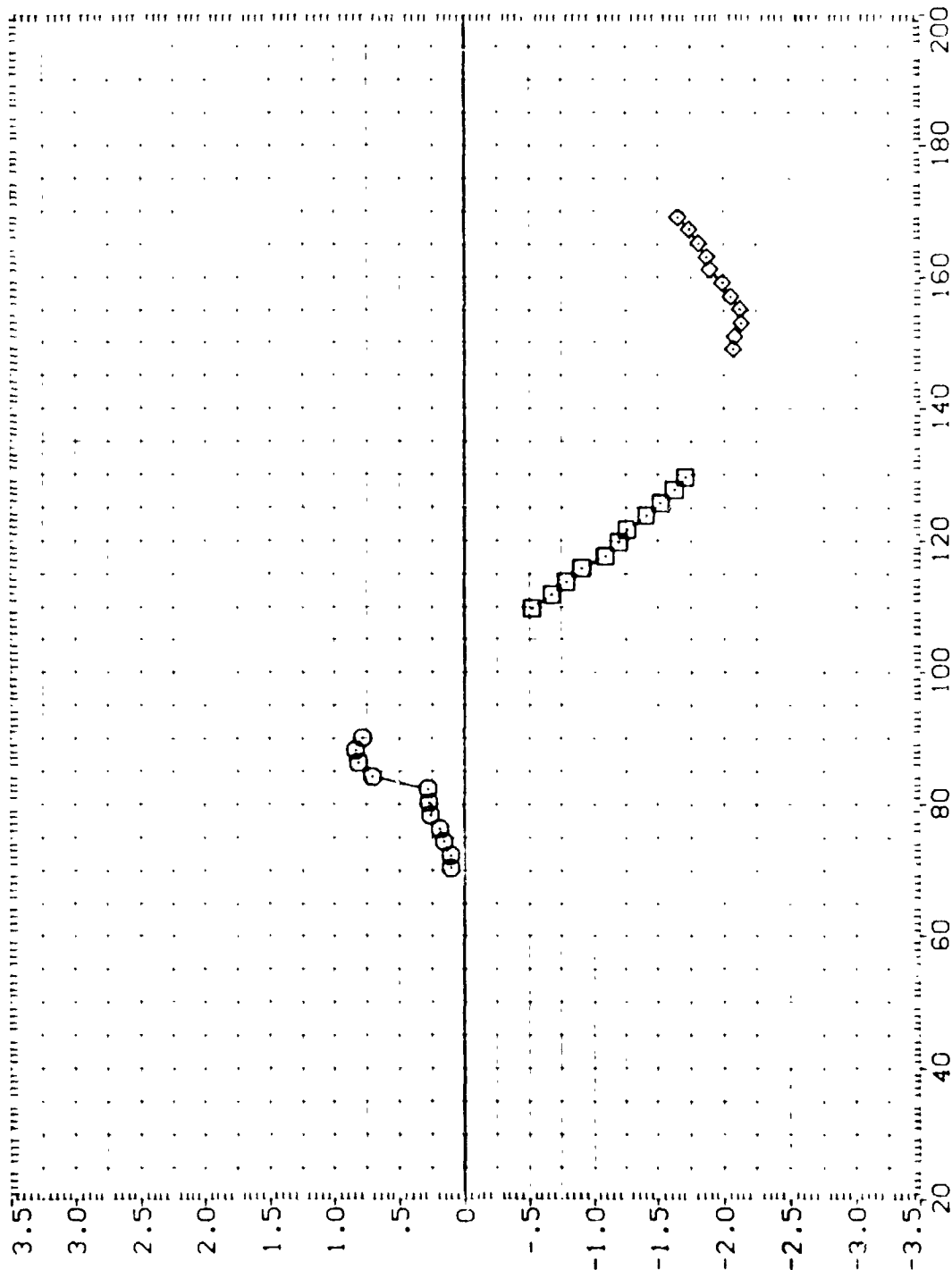


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

ALMACH = .40

DATA SET SYMBOL CONFIGURATION DESCRIPTION PHI

(A1H0601) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES 225.000

(A1H0611) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES 225.000

(A1H0621) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES 225.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XREF 5.0000 IN.

YREF 5.0000 IN.

ZREF 5.0000 IN.

SCALE .0055

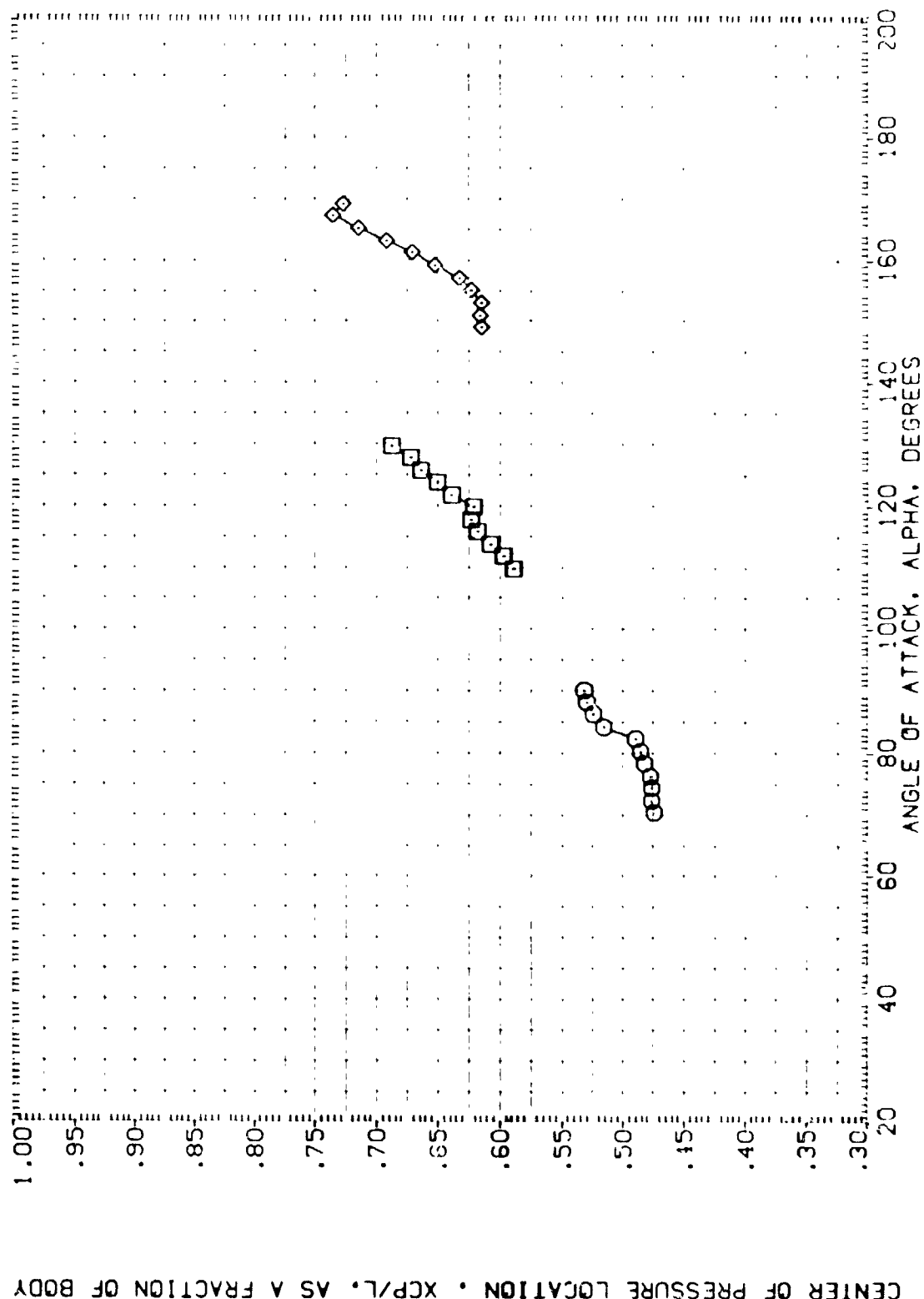


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(A)MACH = .40 PAGE 354

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A11-0601)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A11-0611)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A11-0621)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			XMSP 5.7210 IN. XS
			YMSP .0000 IN. YS
			ZMSP .0000 IN. ZS
			SCALE .0055

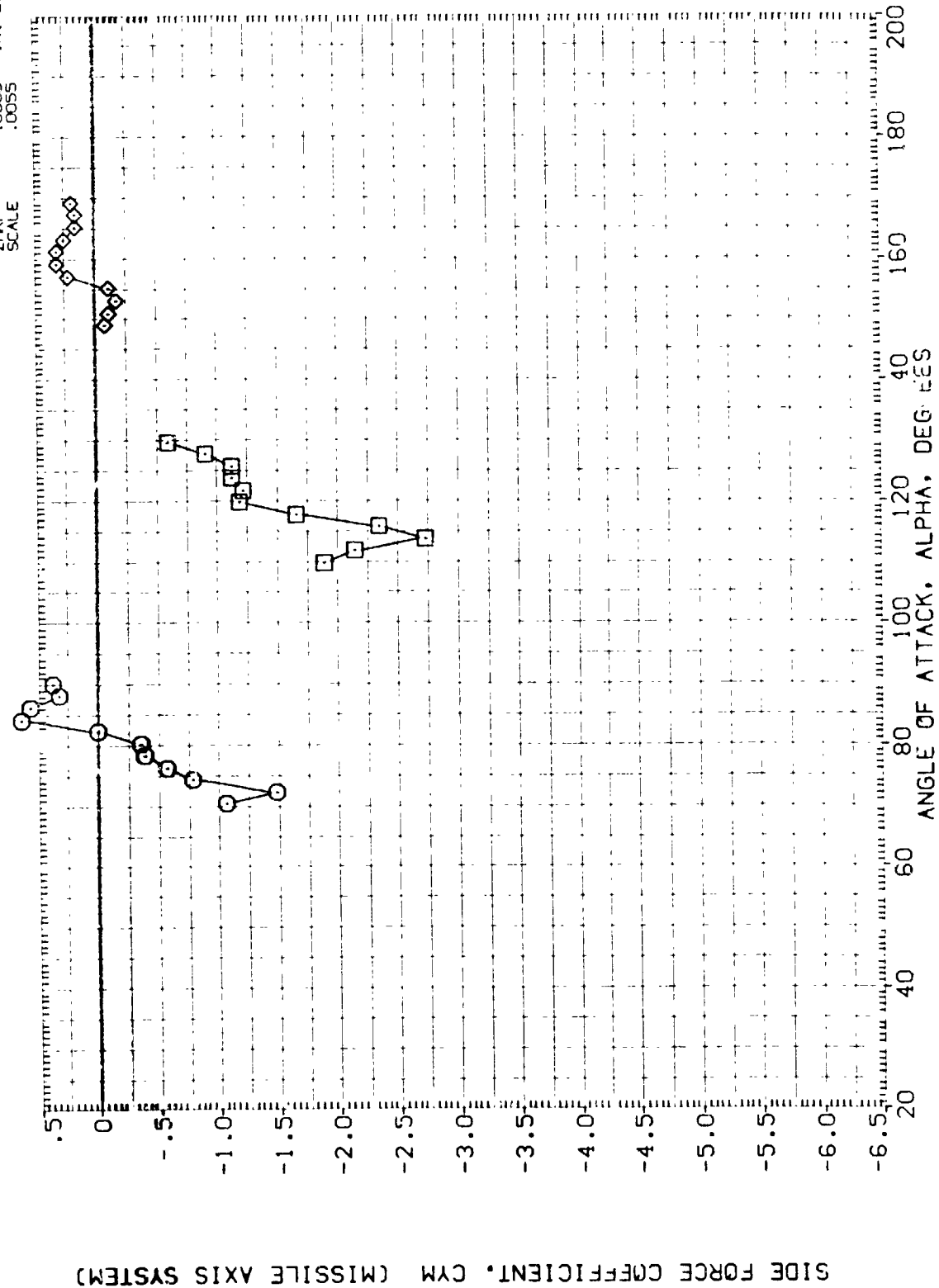


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(AIH050) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIH051) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (AIH052) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION

SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 YMRP 5.7210 IN.  
 ZMRP .0000 IN.  
 SCALE .0055

PHI

225.000  
 225.000  
 225.000

ANGLE OF ATTACK, ALPHA, DEGREES

20 40 60 80 100 120 140 160 180 200

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

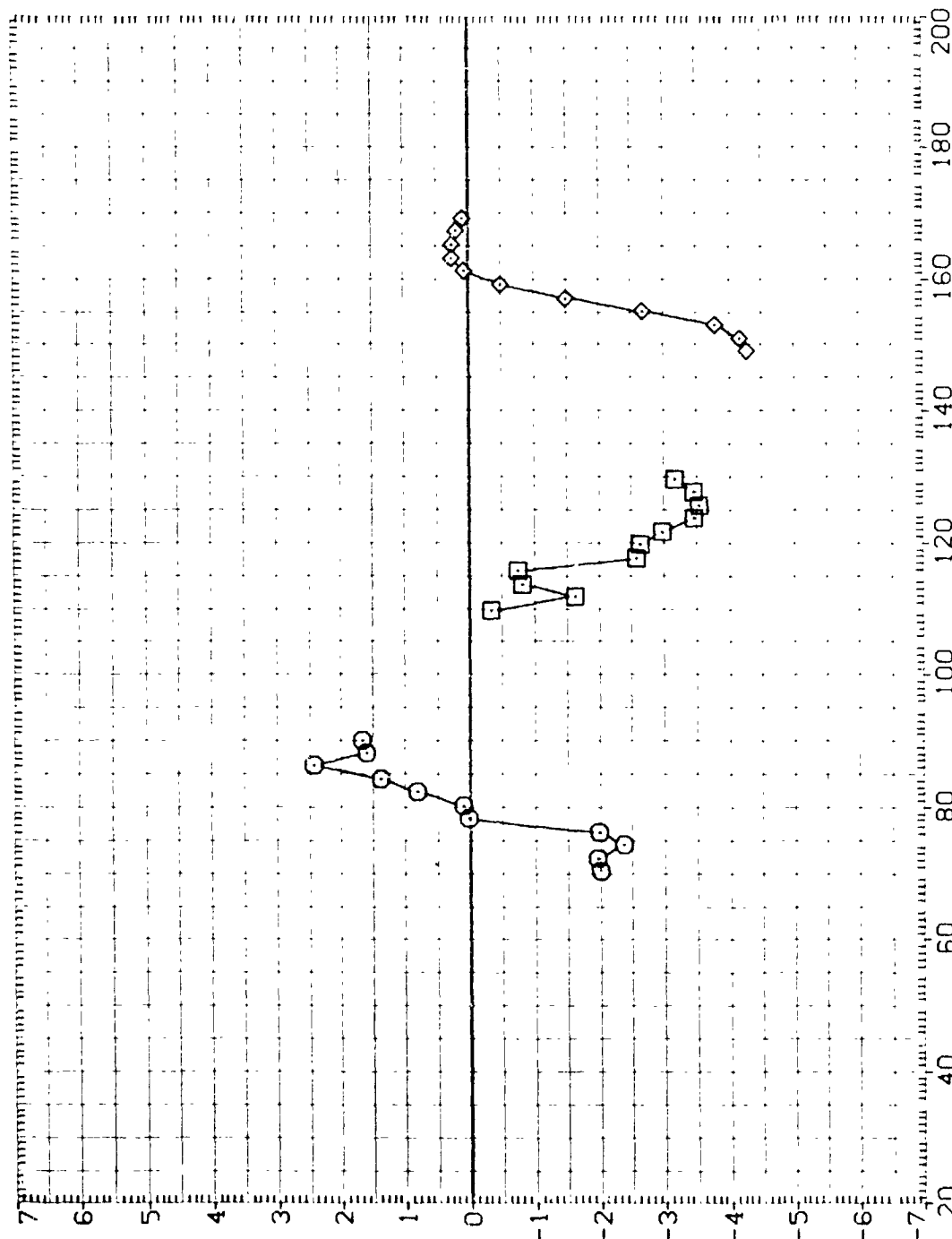


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(MACH = 0.40)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A1H061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

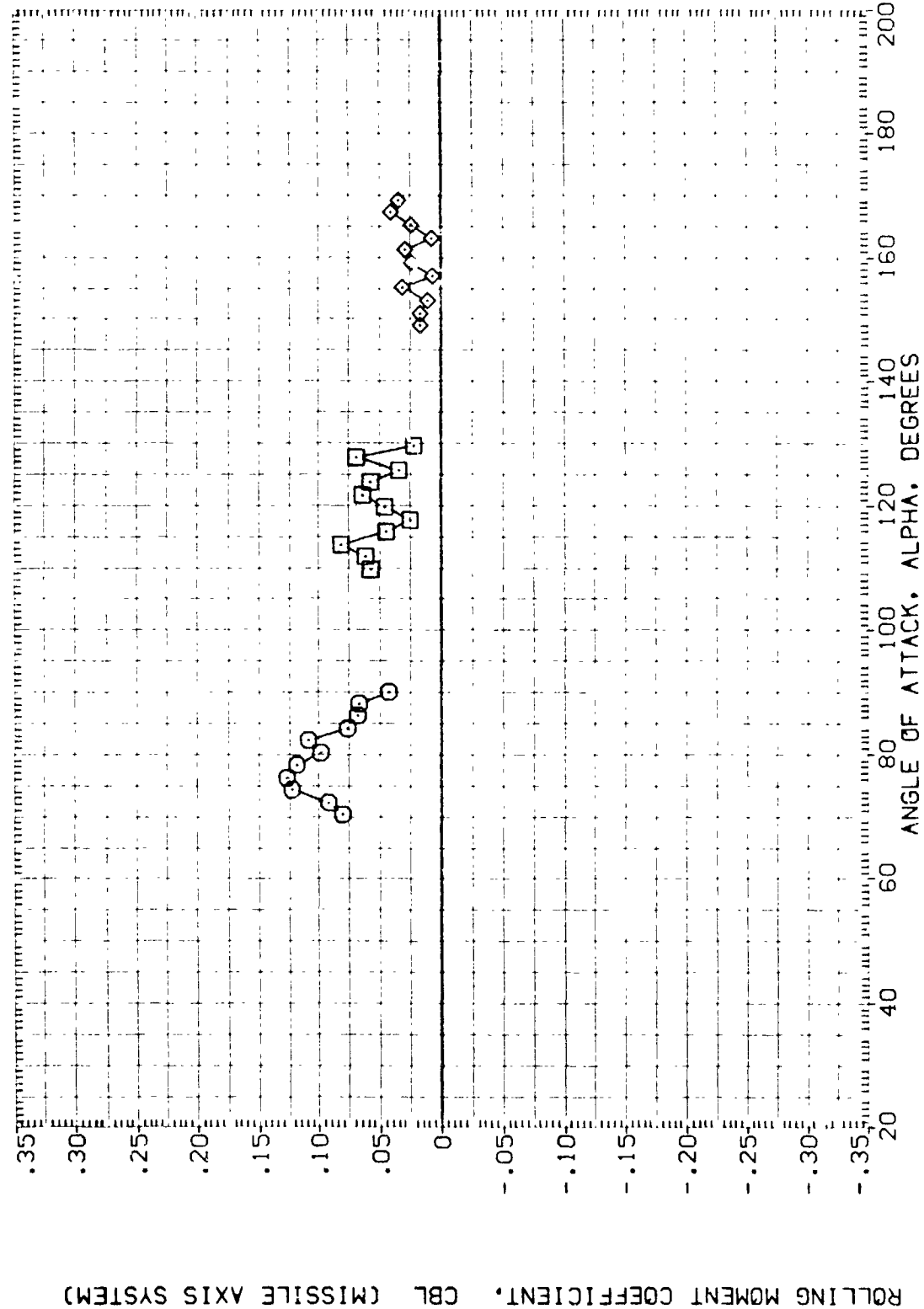


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A1H061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			XMRF 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

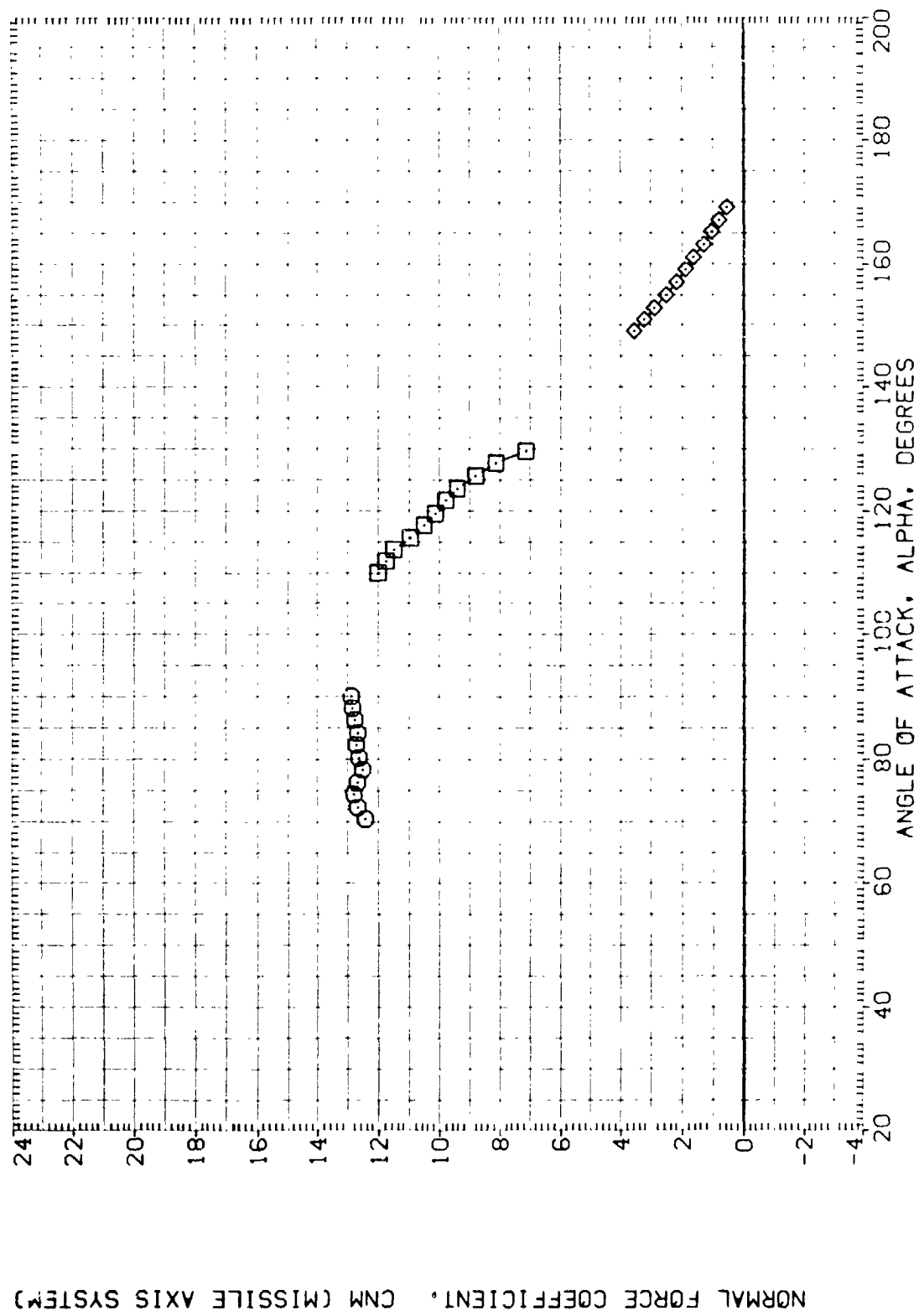


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 IN.
(A1H061)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

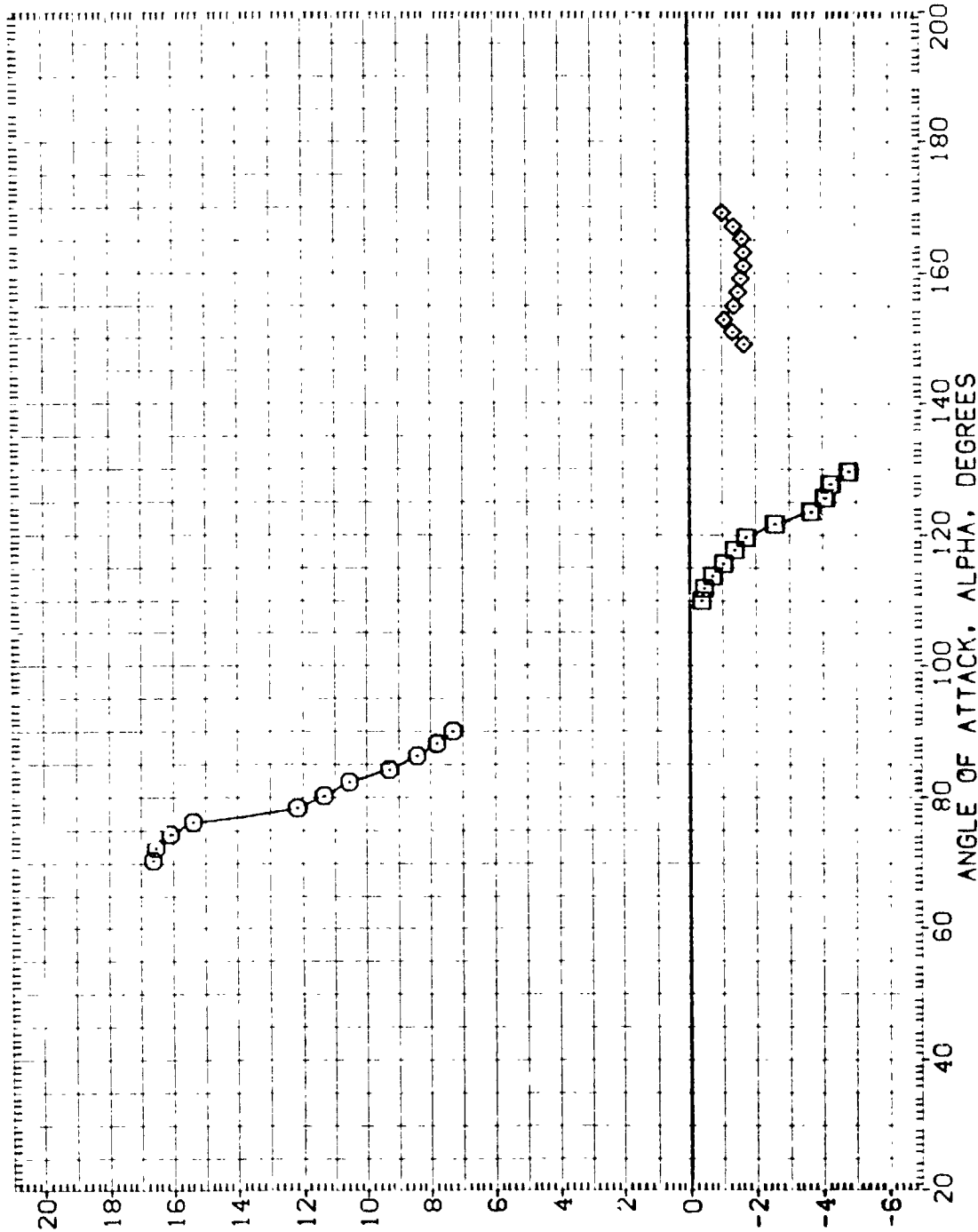


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .503E SQ. IN.
(AIH061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .800E IN.
(AIH062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .800E IN.
			5.721C IN. XS
			YMRP .000C IN. YS
			ZMRP .000C IN. ZS
			SCALE .005E

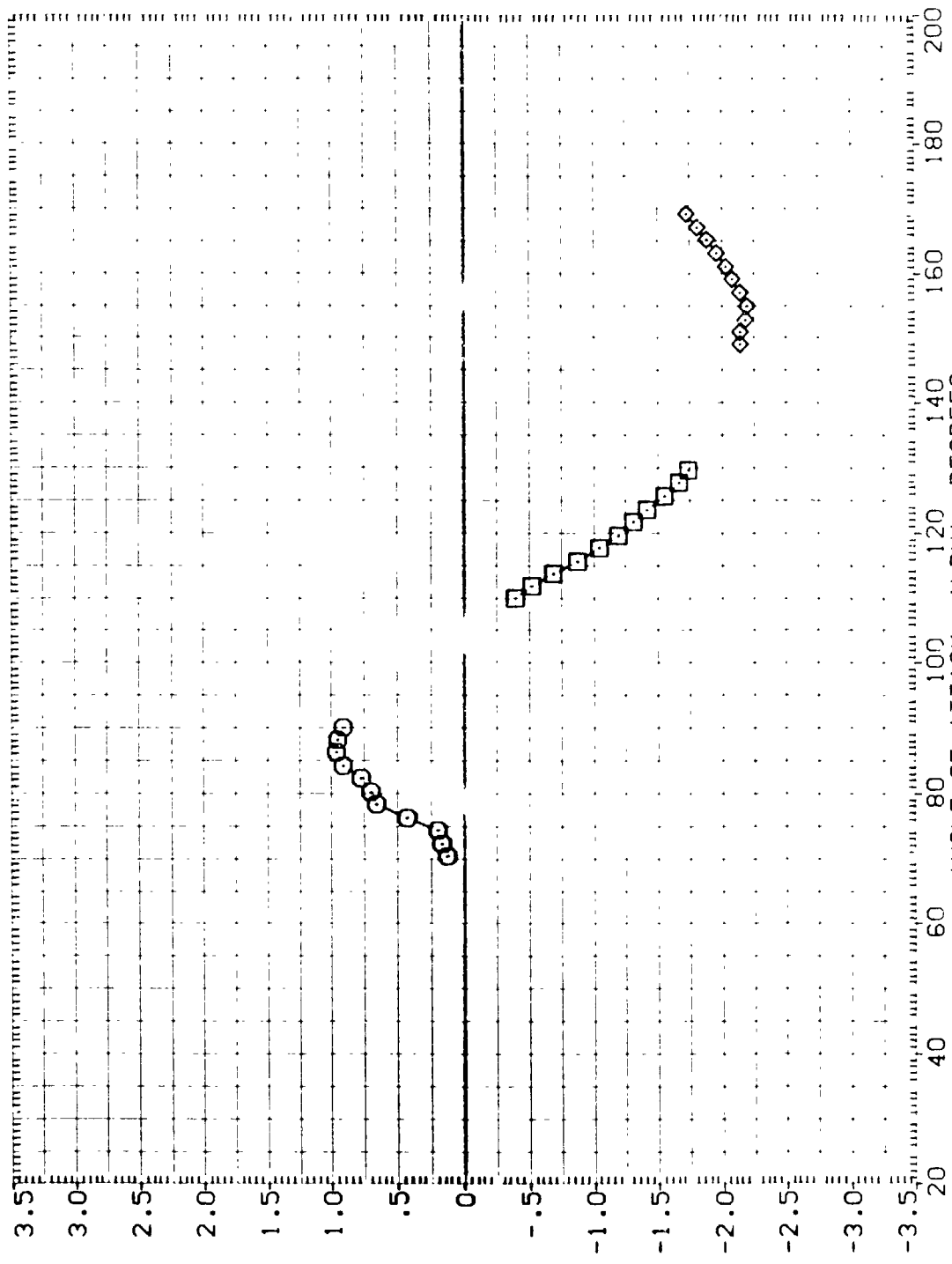


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(B) MACH = .60

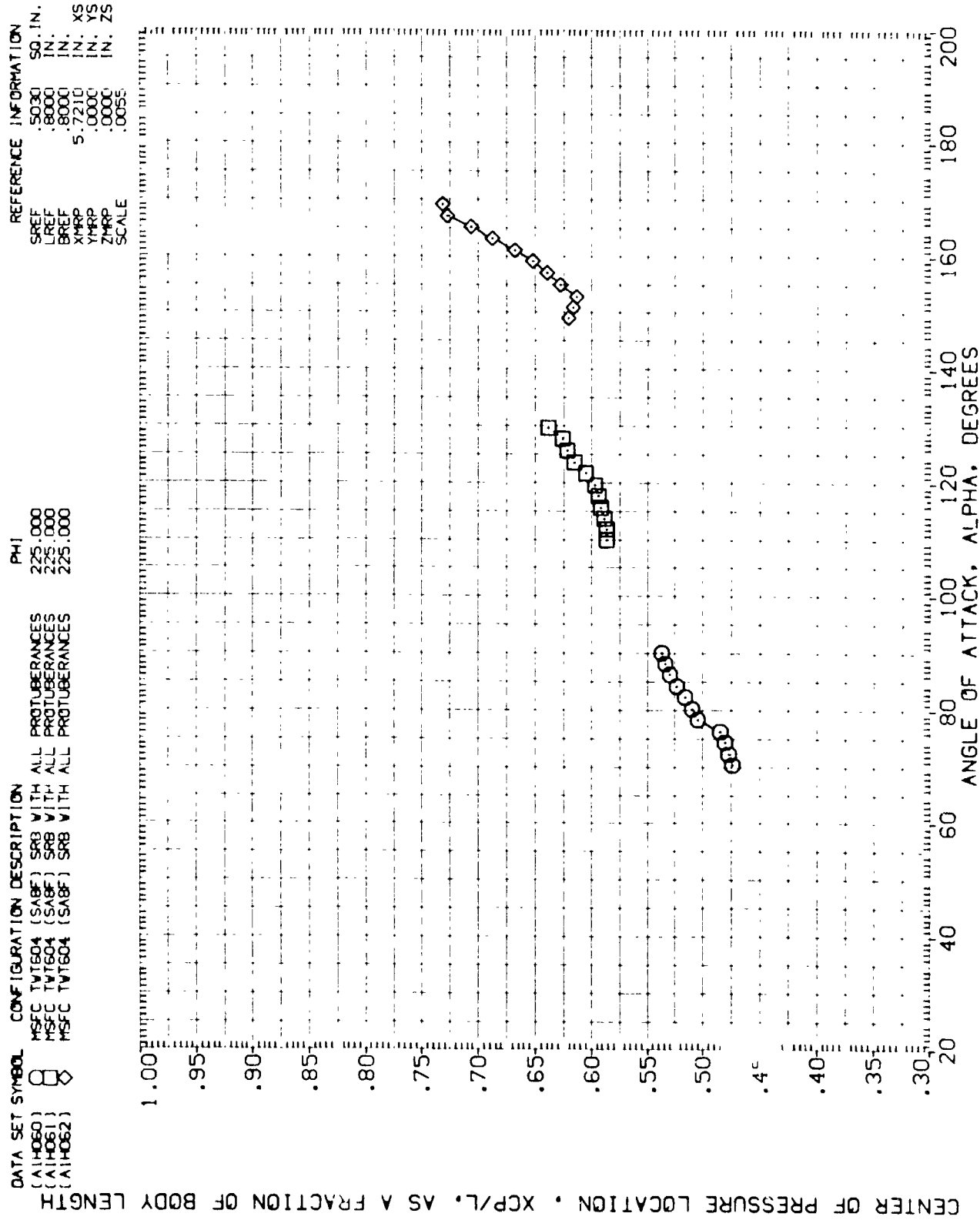


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

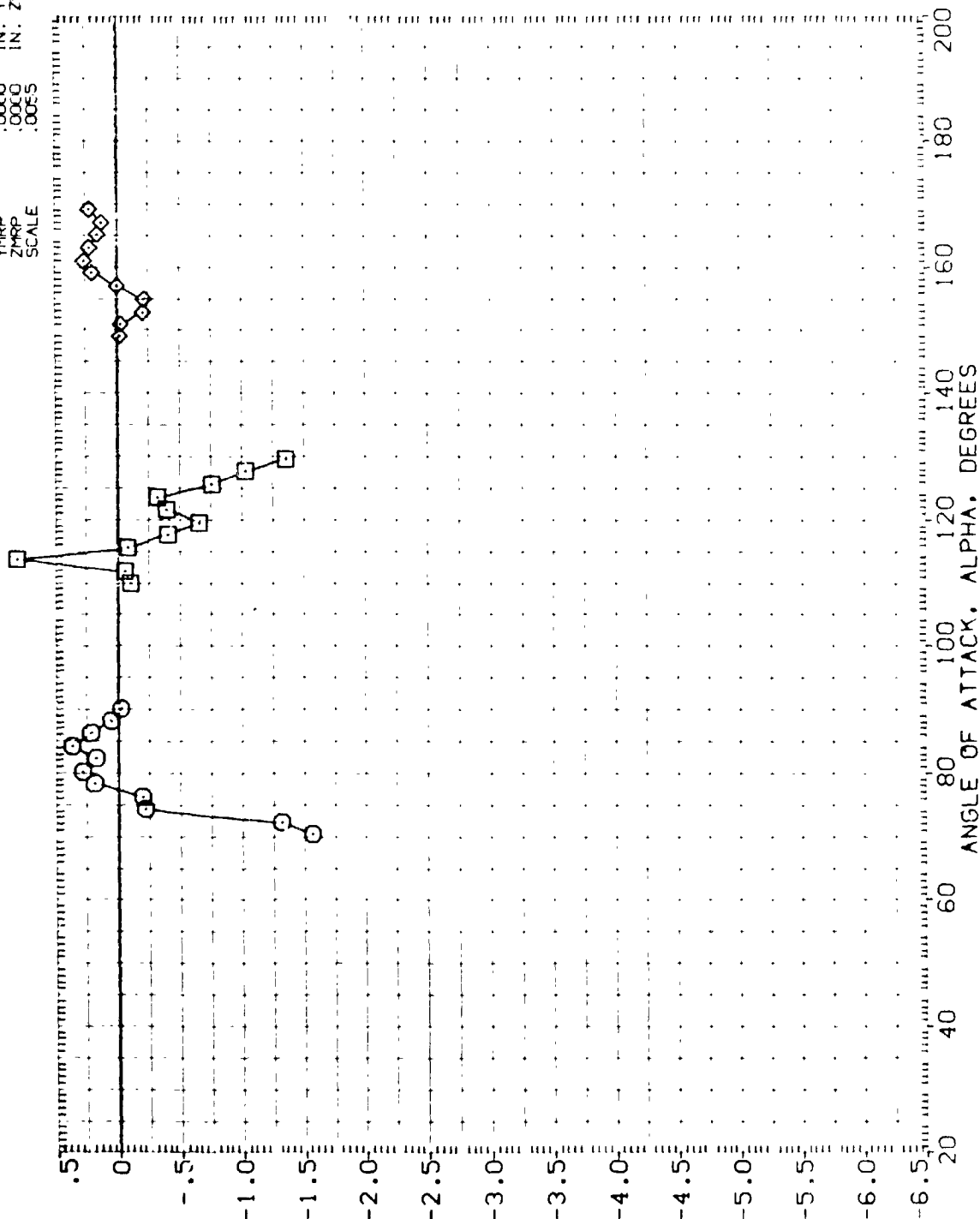
SIDE FORCE COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

$$(8)MACH = .60$$

DATA SET SYMBOL

FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTRUDANCES ( $\text{PHI} = 225^\circ$ )

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(A1H061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(A1H062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

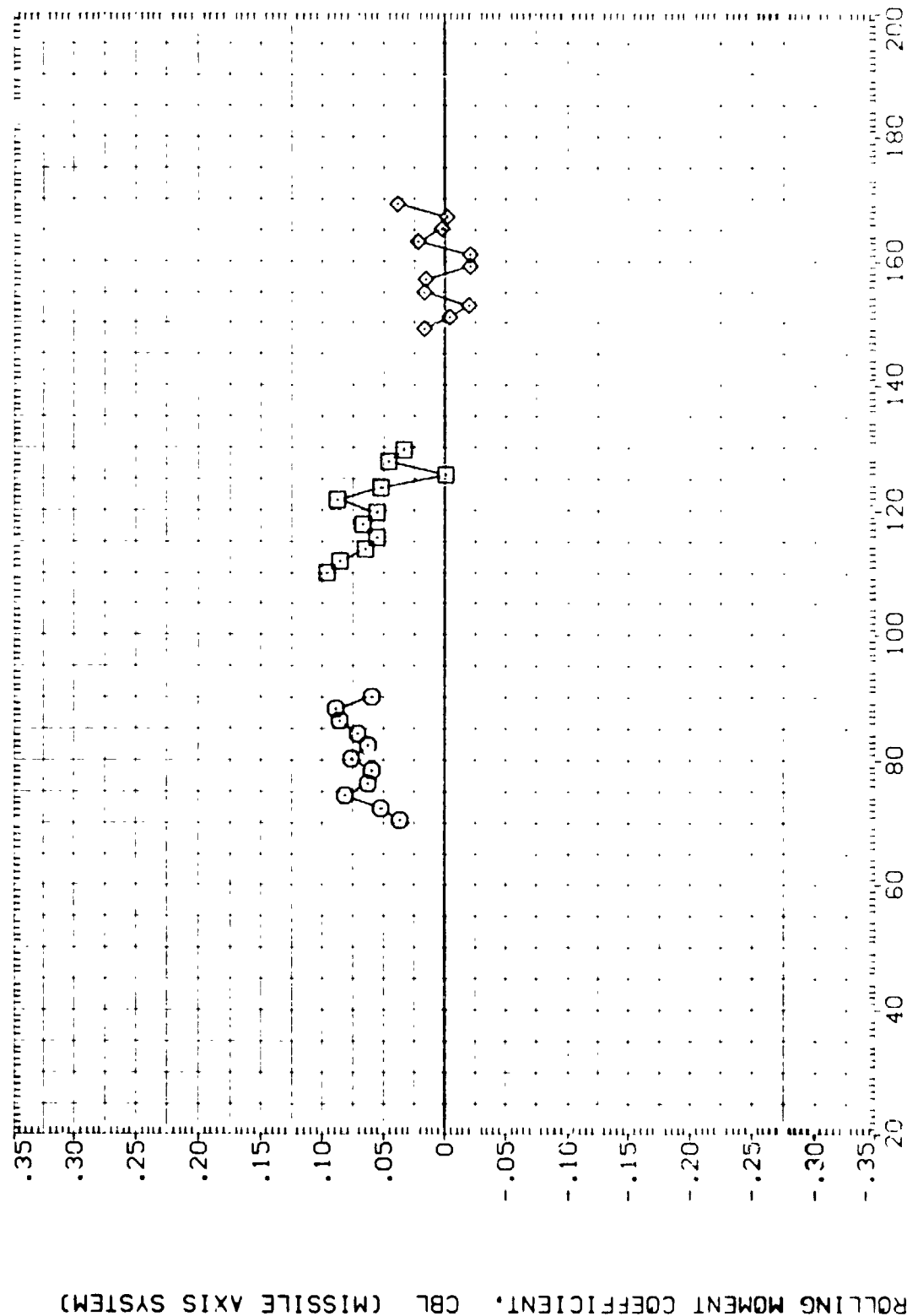


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 IN.
(A1H061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8003 IN.
(A1H062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8003 IN.
			XMRP 5.7213 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

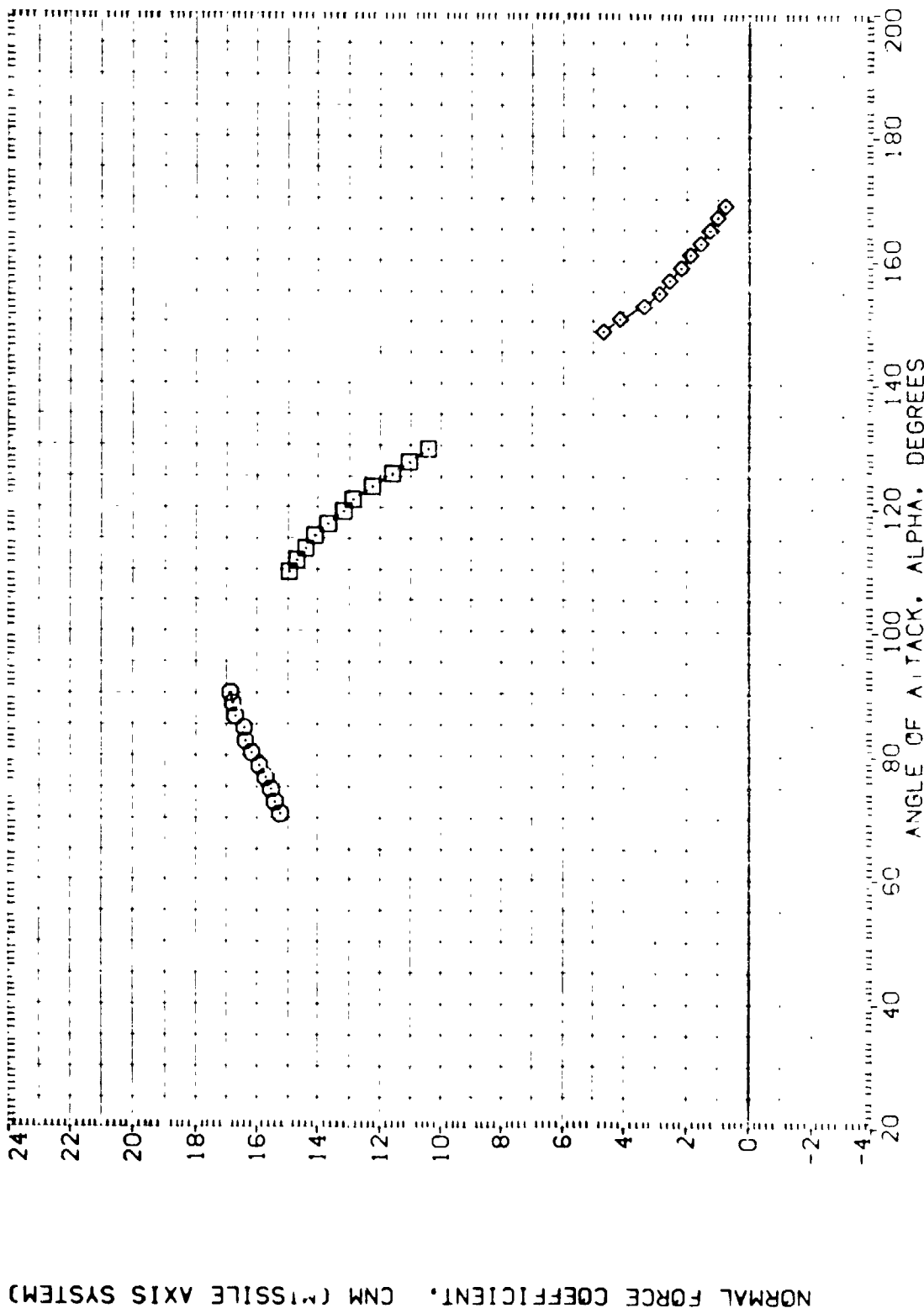


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(AIH051)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(AIH052)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

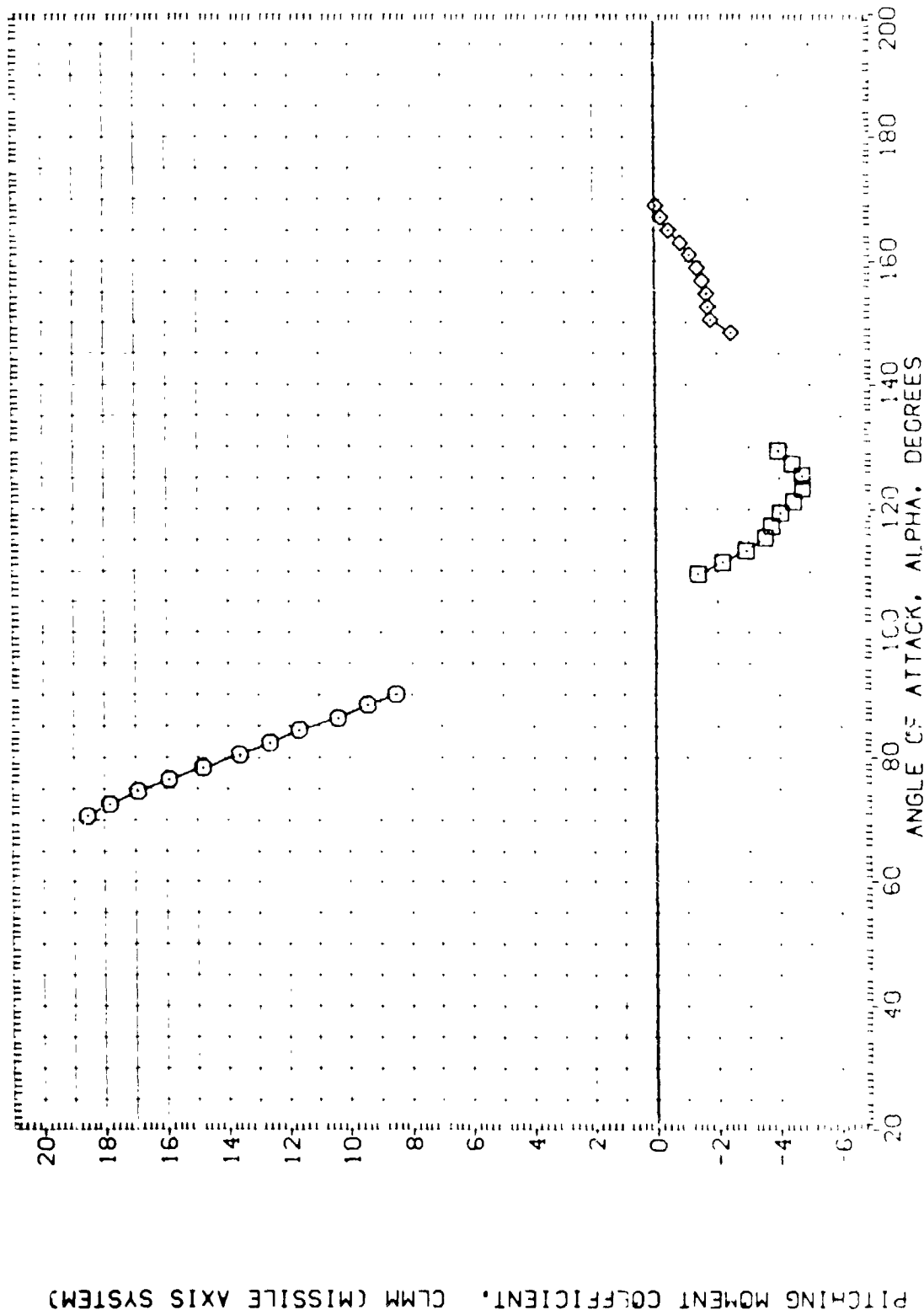


FIGURE 24.5. STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H050)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 IN.
(A1H051)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .6000 IN.
(A1H052)	MSFC TVT6-4 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

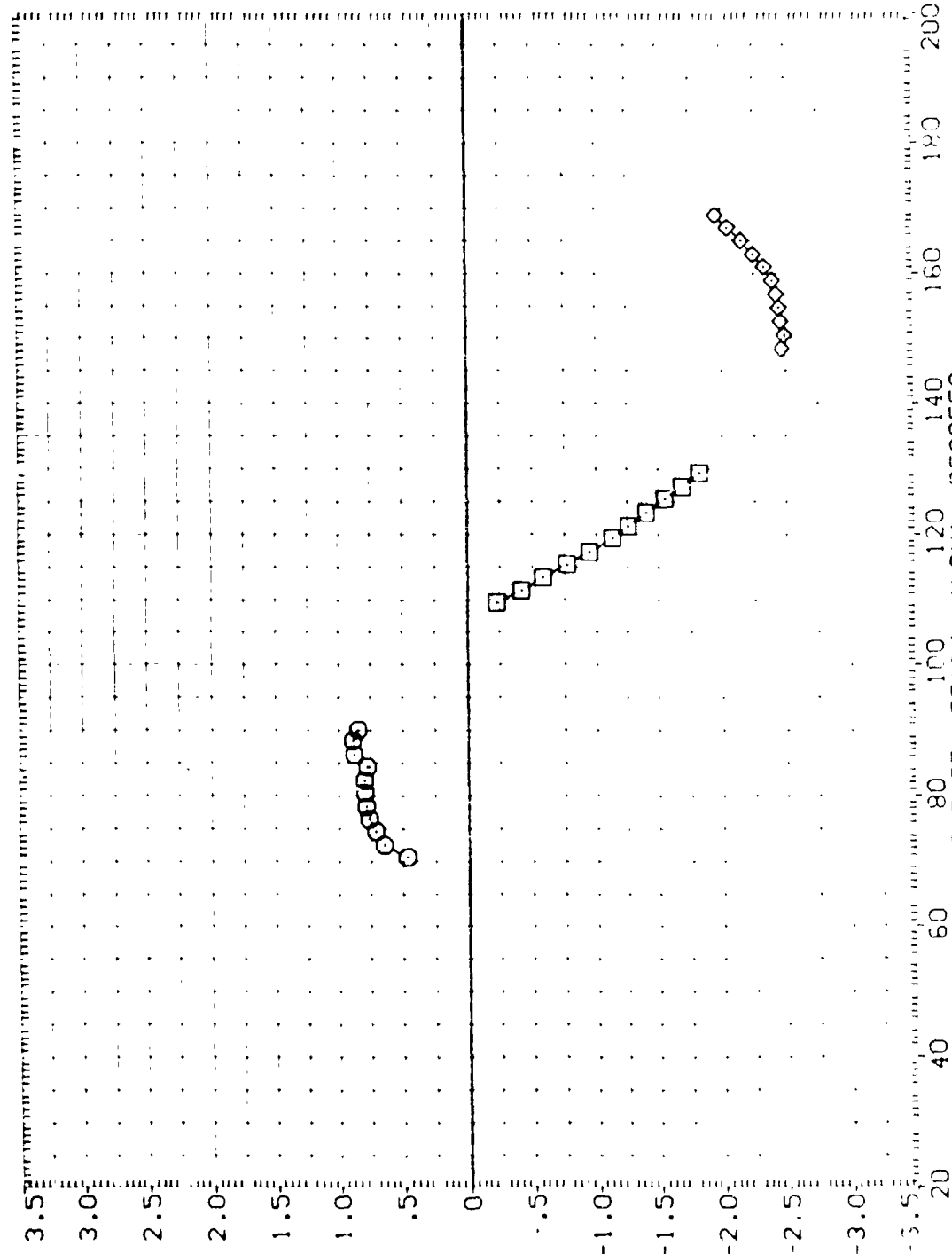


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(C)MACH = .90

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H060)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5C30 SQ. IN.
(A1H061)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8C00 IN.
(A1H062)	HSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .8C00 IN.
			5.7210 IN. XS
			YMRP .0C00 IN. YS
			ZMRP .0C00 IN. ZS
			SCALE .0C55

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

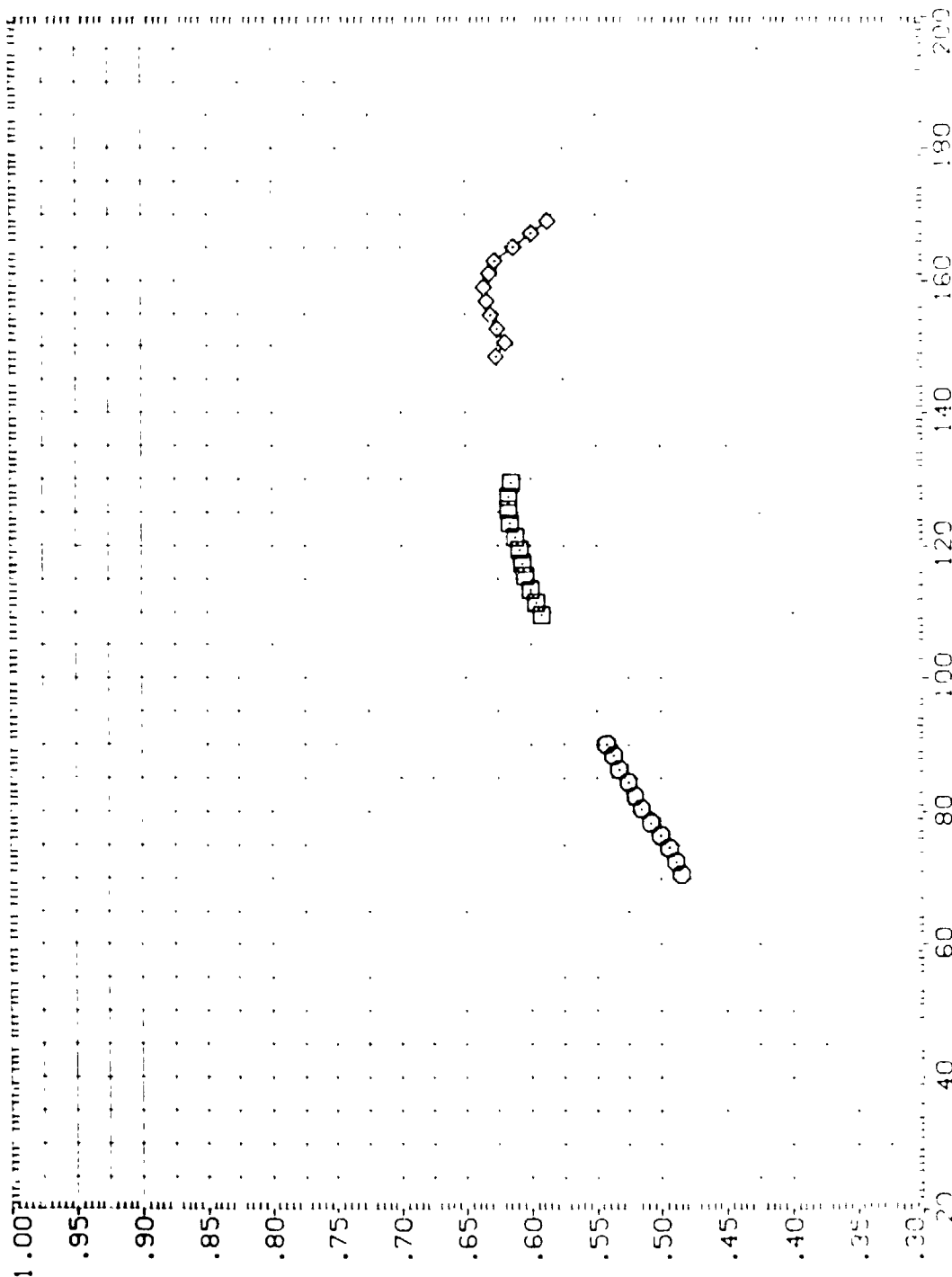


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(MACH = .90) PAGE 348

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H060)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000

(A1H061)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000

(A1H062)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000

REFERENCE INFORMATION

SREF    5030    IN.

LREF    8000    IN.

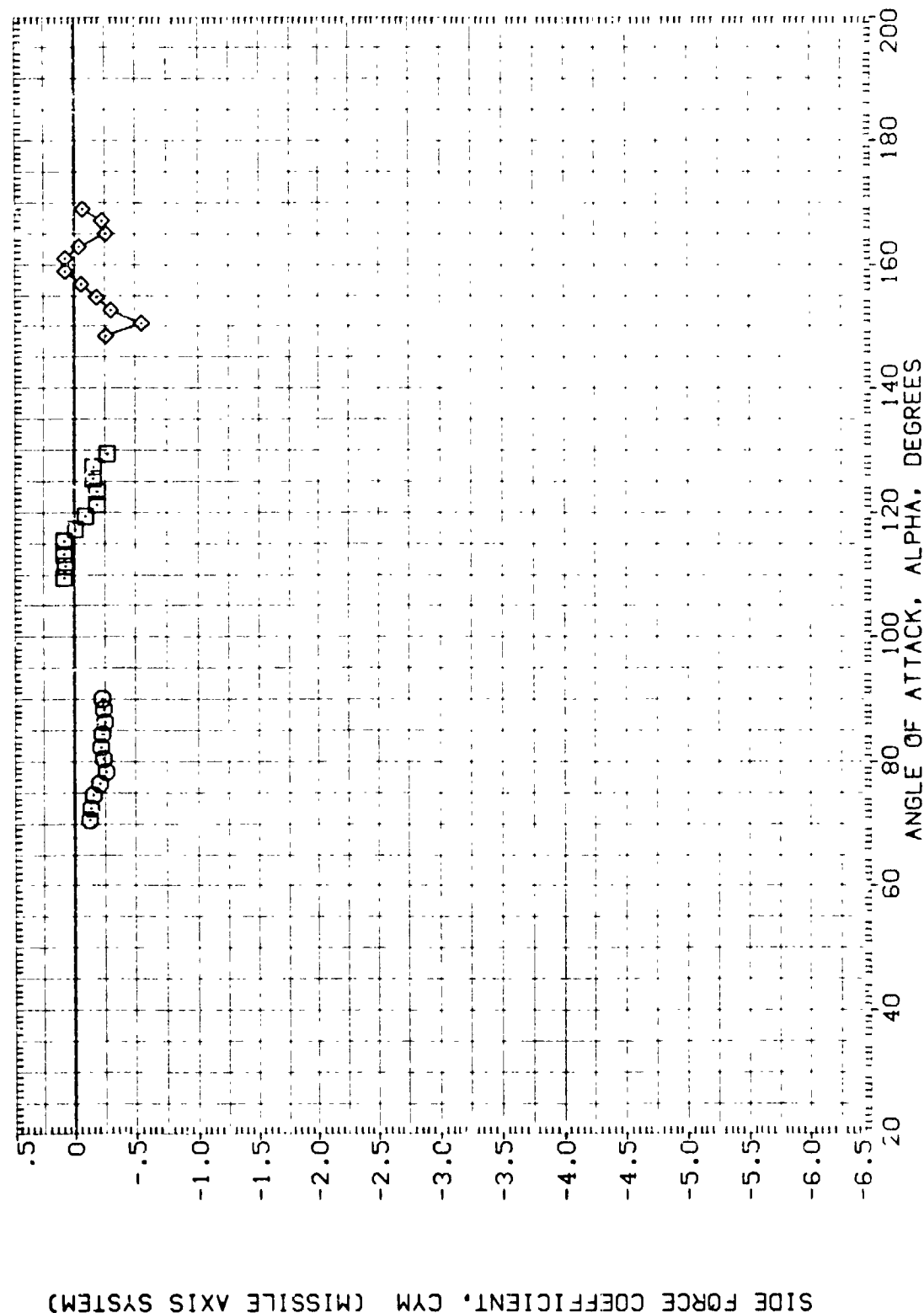
BREF    8000    IN.

XMPP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055



SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(C)MACH = .90

REFERENCE INFORMATION	
SREF	.5030 IN.
LREF	.8000 IN.
BREF	.8000 IN.
XMPP	5.7210 IN.
YMPP	.0000 IN.
ZMPP	.0000 IN.
SCALE	.0055 IN.

PHI  
225.000  
225.000  
225.000

MSFC	TWT604	(SABF)	SRB	WITH	ALL	PROTUBERANCES
MSFC	TWT604	(SABF)	SRB	WITH	ALL	PROTUBERANCES
MSFC	TWT604	(SABF)	SRB	WITH	ALL	PROTUBERANCES

(A1H060)  
(A1H061)  
(A1H062)

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

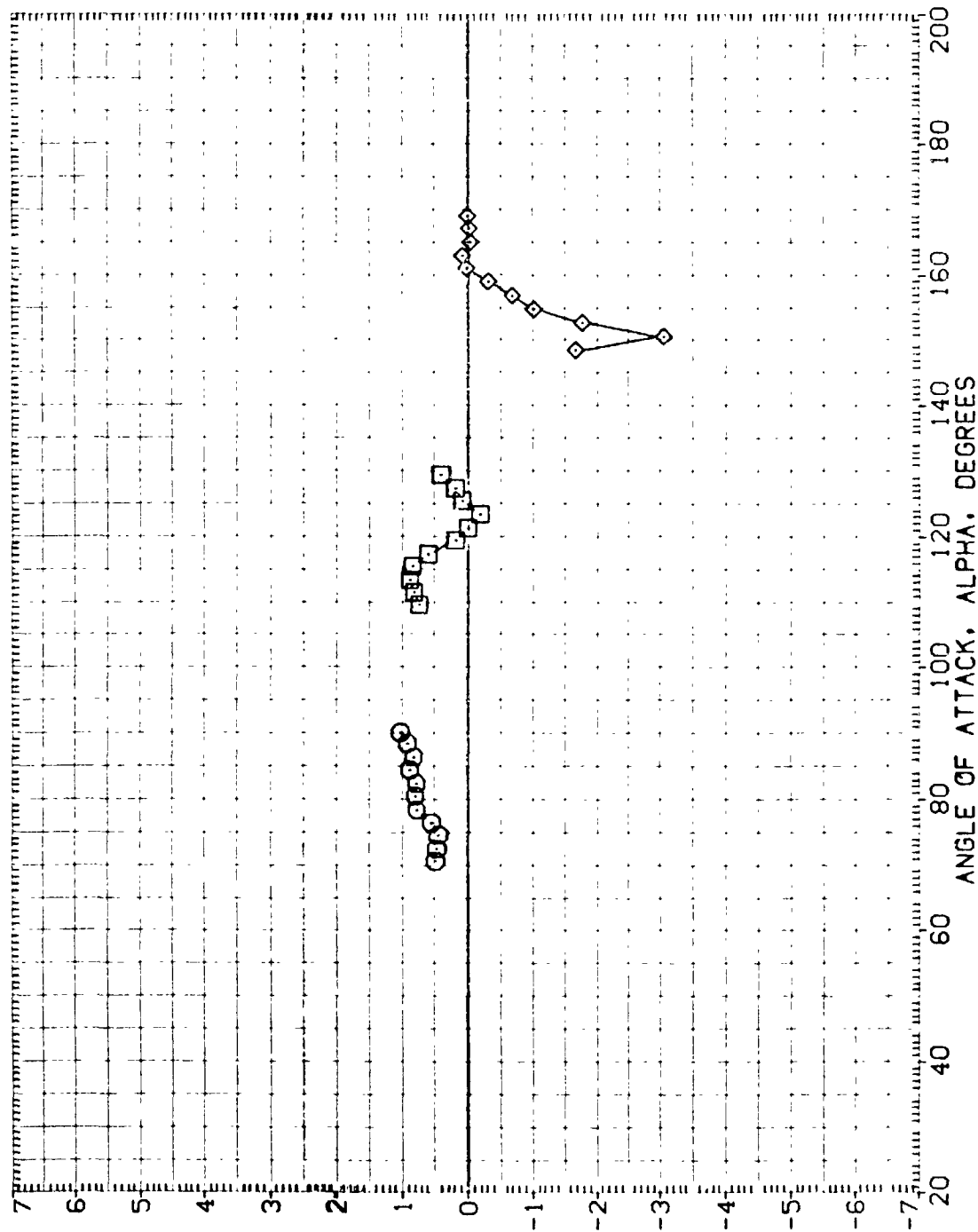


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

$$C(MACH) = .90$$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH050)	MSFC TVT604 (SA&F) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 SQ. IN.
(AIH051)	MSFC TVT604 (SA&F) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(AIH052)	MSFC TVT604 (SA&F) SRB WITH ALL PROTUBERANCES	225.000	BREF .8000 IN.
			XMPP 5.7210 IN. XS
			YMPP .0000 IN. YS
			ZMPP .0000 IN. ZS
			SCALE .0055

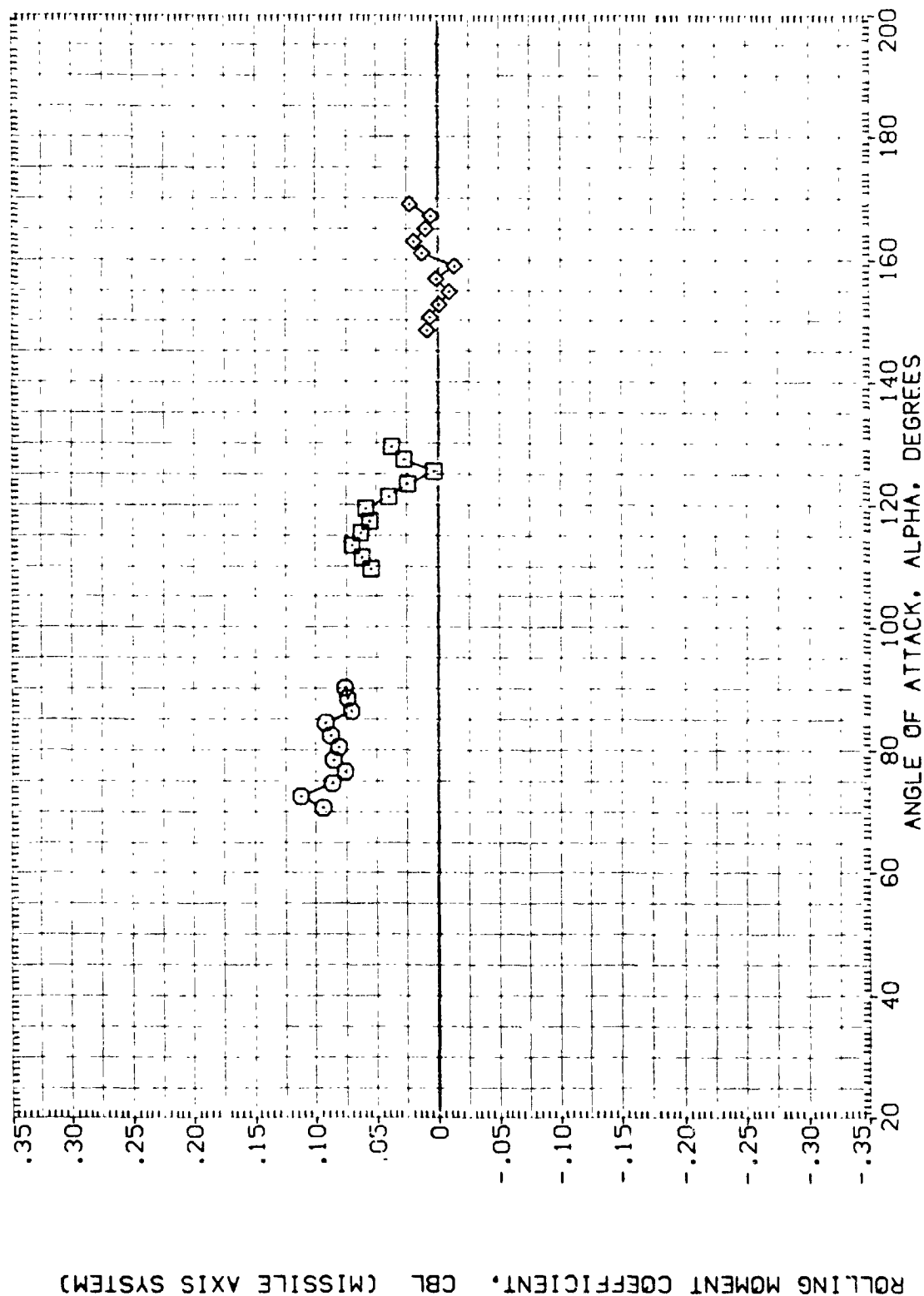


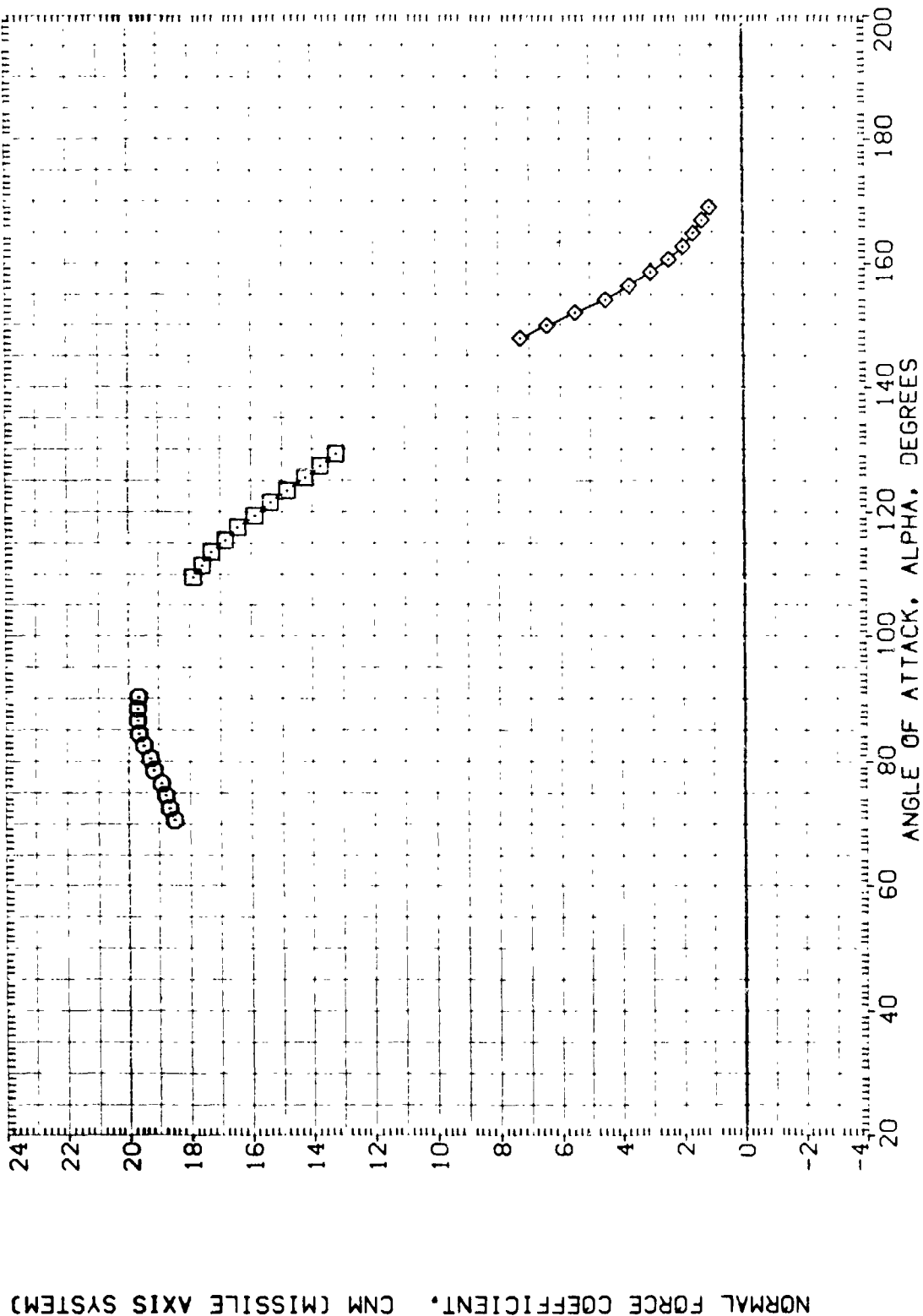
FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

REFERENCE INFORMATION	
SREF	.5030 SQ. IN.
LREF	.8000 IN.
BREF	.8000 IN.
YMRP	5.7210 IN. XS
YMRP	.0030 IN. YS
ZMRP	.0030 IN. ZS
SCALE	.0035

PHI  
225.000  
225.000  
225.030

CONFIGURATION	DESCRIPTION
MSFC TWT604 (SABF)	SRB WITH
MSFC TWT604 (SABF)	SRB WITH
MSFC TWT604 (SABF)	SRB WITH

DATA SET SYMBOL	SYMBOL
(A1H060)	
(A1H061)	
(A1H062)	



REFERENCE INFORMATION:  
 SREF .5030 50. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 YMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H060) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H061) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H062) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 225.000  
 225.000  
 225.000

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

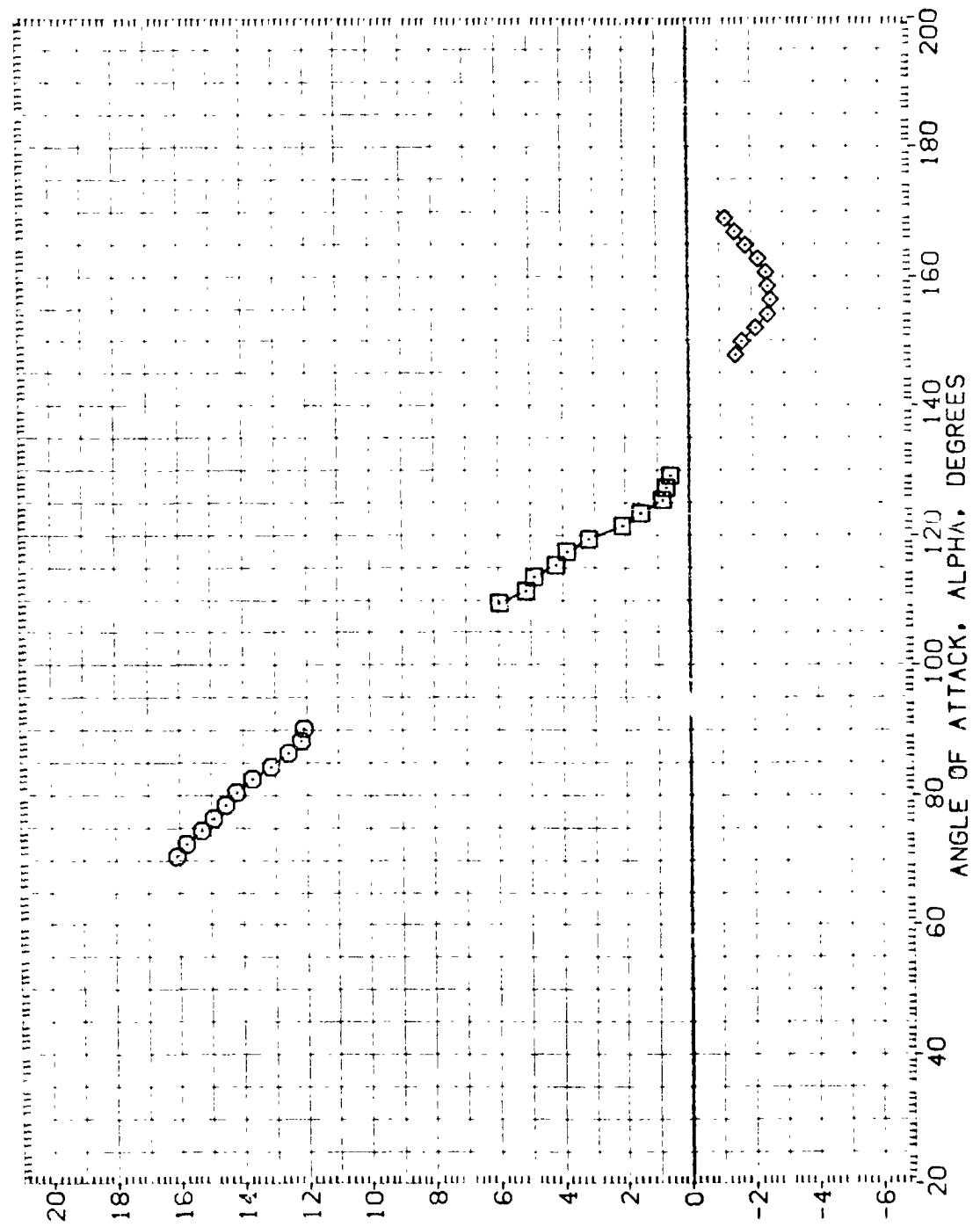


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(O) MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE IN	QATION
AIH060	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	5.000	SREF	50. IN.
AIH061	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	2.25.000	LREF	80.00 IN.
AIH062	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	2.25.000	BREF	80.00 IN.
			XMRP	5.7210 IN. XS
			YMRP	.0000 IN. YS
			ZMRP	.0000 IN. ZS
			SCALE	.0055

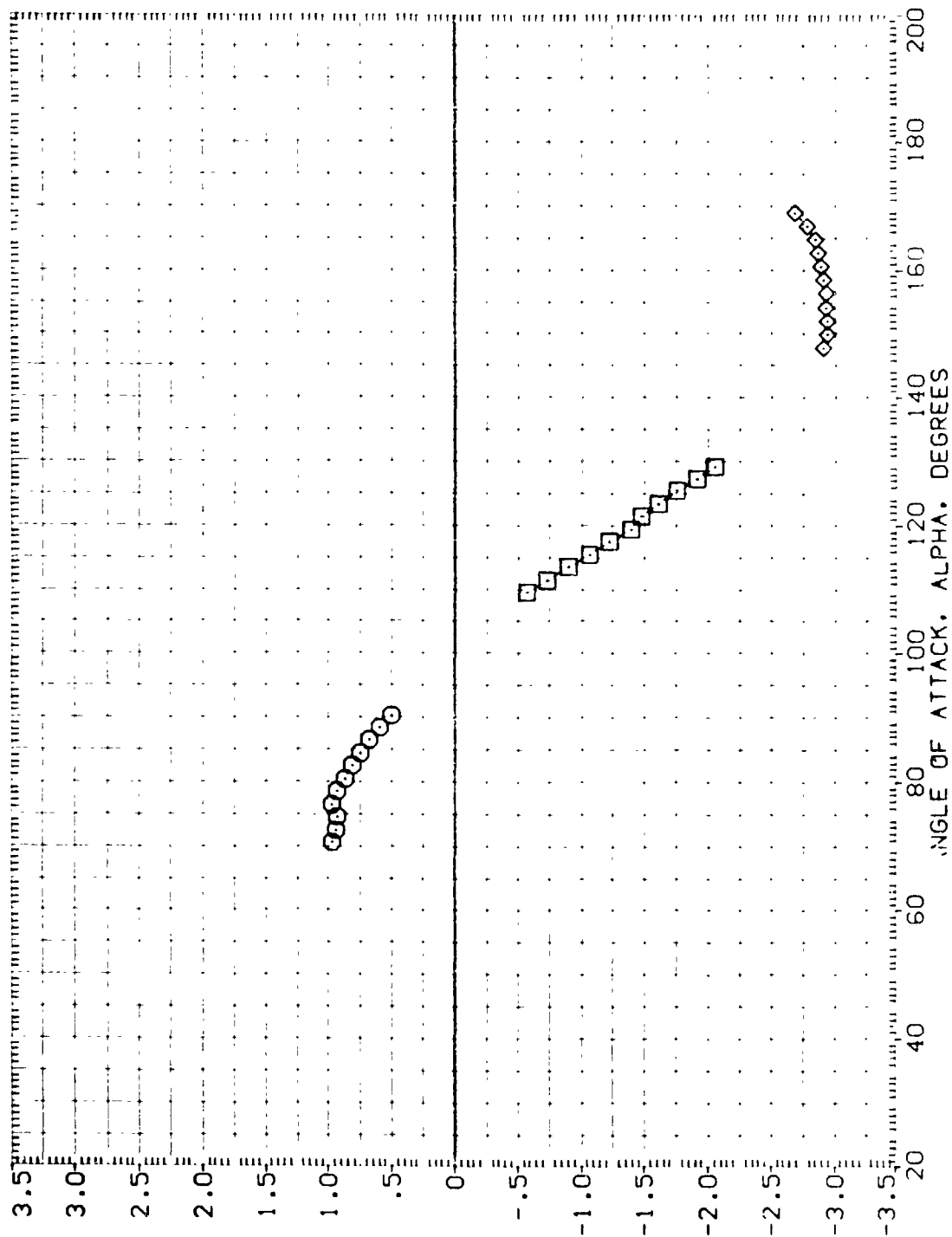


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

(D)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI  
 (AI-HO-0)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000  
 (AI-HO-1)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000  
 (AI-HO-2)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    225.000

REFERENCE INFORMATION  
 SREF    5030    50. IN.  
 LREF    8000    IN.  
 SREF    8000    IN.  
 XMRP    5.7210    IN.    XS  
 YMRP    .0000    IN.    YS  
 ZMRP    .0000    IN.    ZS  
 SCALE    .0055

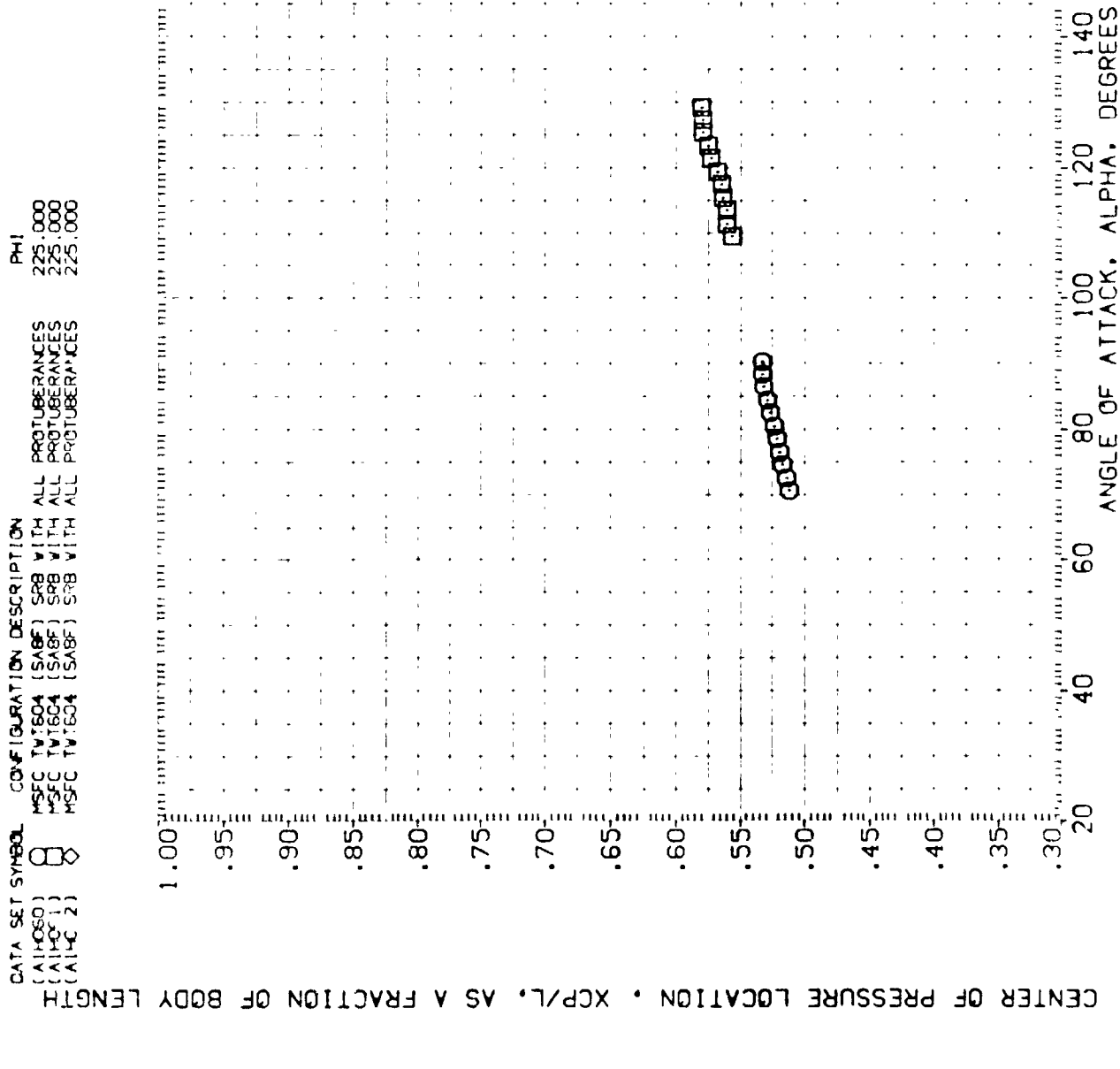


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(D) MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH060)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	SREF .5030 IN.
(AIH061)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	LREF .8000 IN.
(AIH062)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	225.000	BREF .5000 IN.
			5.210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

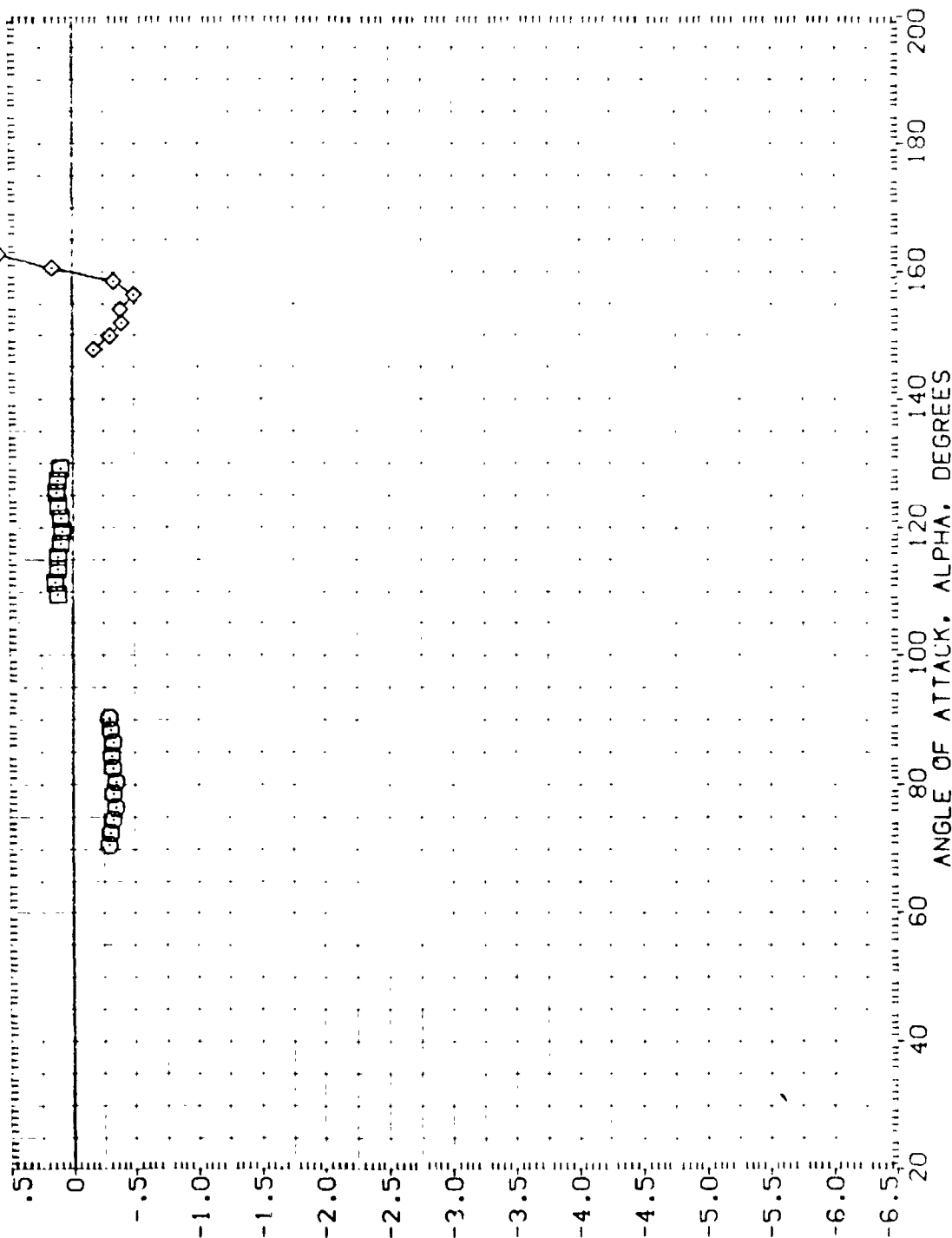


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(O) MACH = 1.20

REFERENCE INFORMATION  
 SREF .5030 IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7710 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

DATA SET SYMBOL CONFIGURATION DESCRIPTION PHI  
 (A110650) MSFC TV1504 (SABF) SRB WITH ALL PROTUBERANCES 225.000  
 (A110651) MSFC TV1504 (SABF) SRB WITH ALL PROTUBERANCES 225.000  
 (A110652) MSFC TV1504 (SABF) SRB WITH ALL PROTUBERANCES 225.000

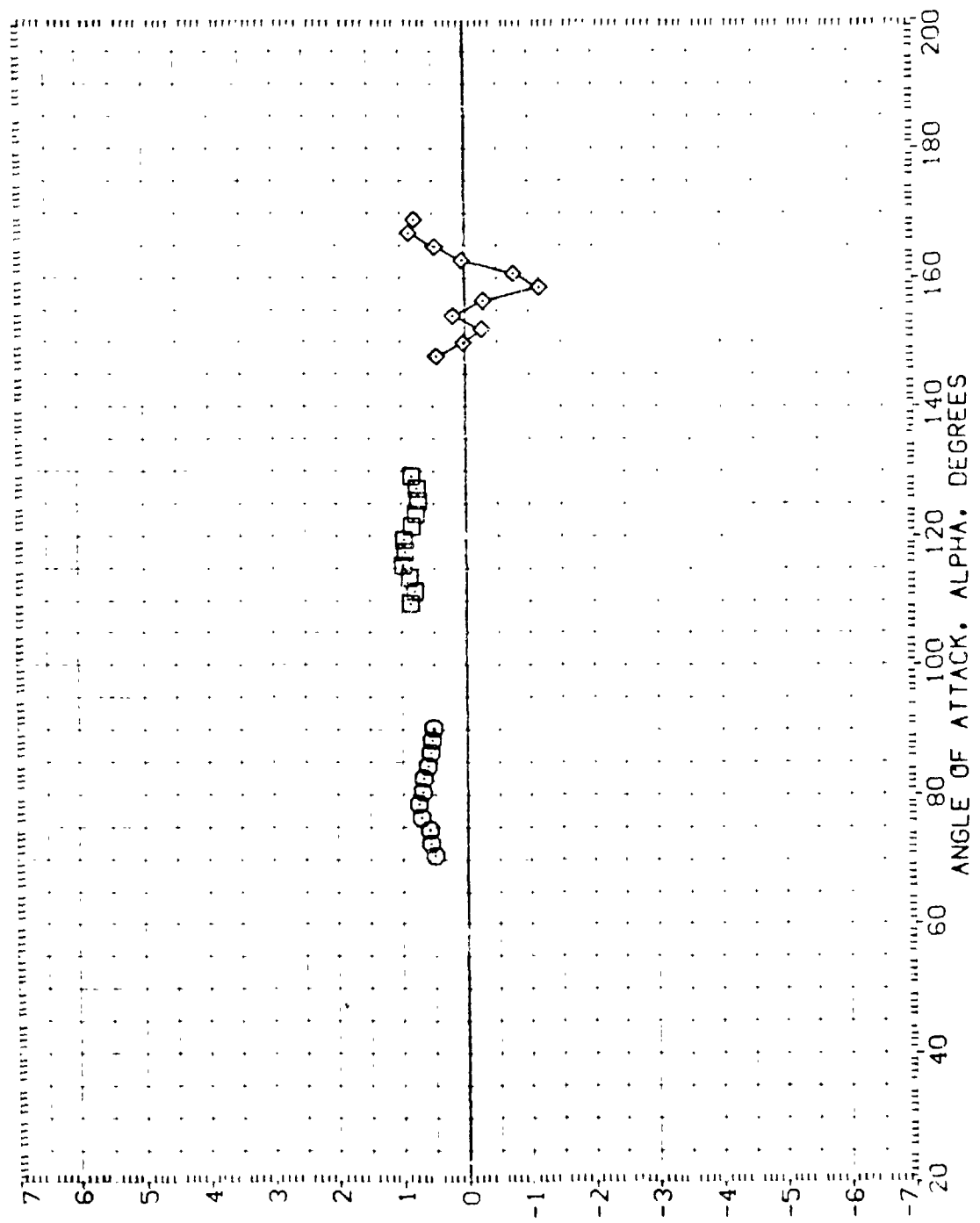


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 225)

DATA SET SYMBOL  
 (A1H060)  
 (A1H061)  
 (A1H062)

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 225.000  
 225.000  
 225.000

REFERENCE INFORMATION  
 SREF .5C30 SQ. IN.  
 LREF .9C00 IN.  
 BREF .8C00 IN.  
 YMRP 5.2210 IN. XS  
 YMRP .0C00 IN. YS  
 ZMRP .0C00 IN. ZS  
 SCALE .0C55

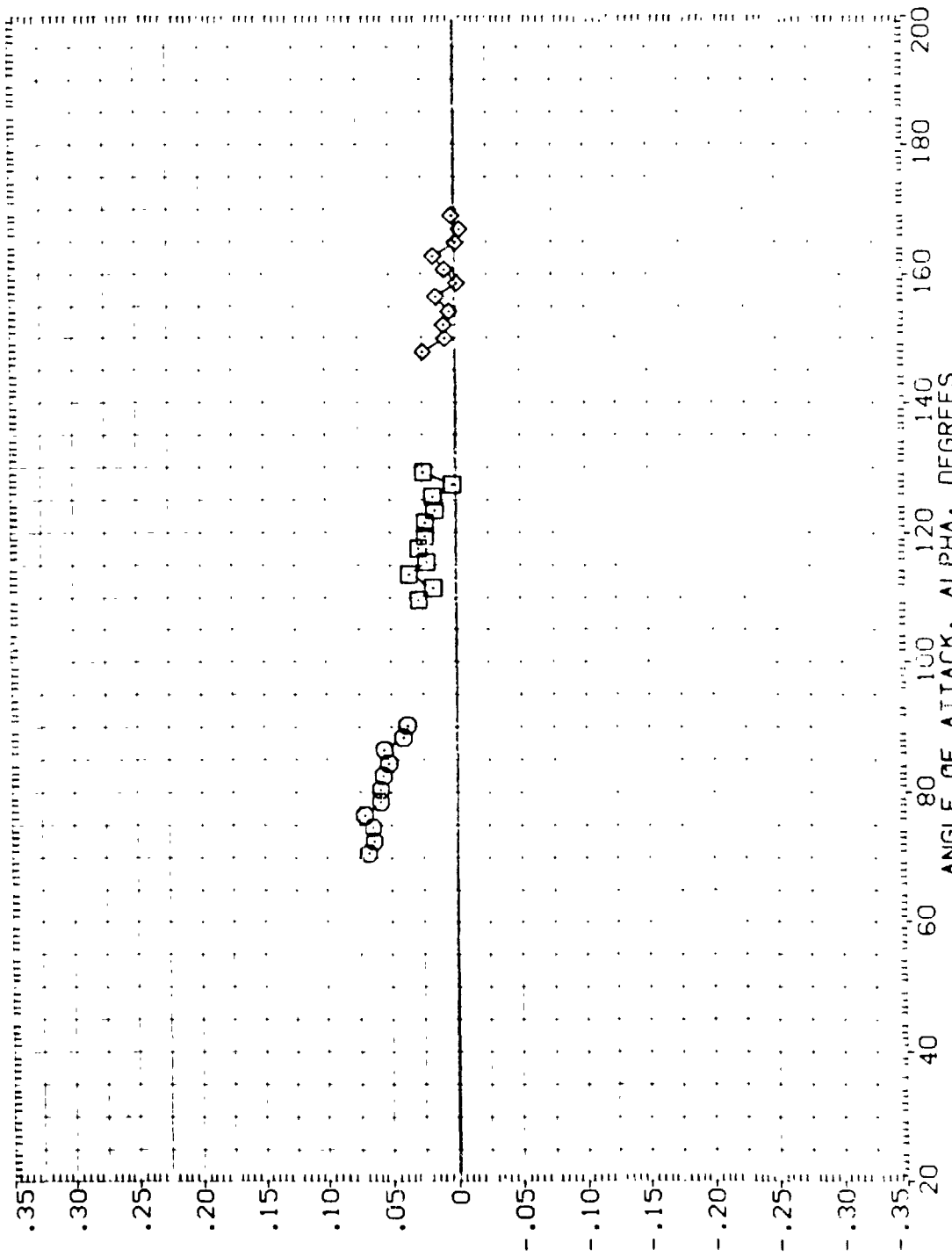


FIGURE 24. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 225)

(O) MACH = 1.20

DATA SET SYMBOL CONFIGURATION: DESCRIPTION

(A1-H008) DATA NOT AVAILABLE SRB WITH ALL PROTUBERANCES  
 (A1-H056) M3FC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1-H008) M3FC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1-H008) M3FC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION

SREF 50.30 50.30 IN.  
 LREF 50.30 50.30 IN.  
 BREF 50.30 50.30 IN.  
 XMRP 50.30 50.30 IN.  
 YMRP 50.30 50.30 IN.  
 ZMRP 50.30 50.30 IN.  
 SCALE 50.30

PHI

270.000  
 270.000  
 270.000

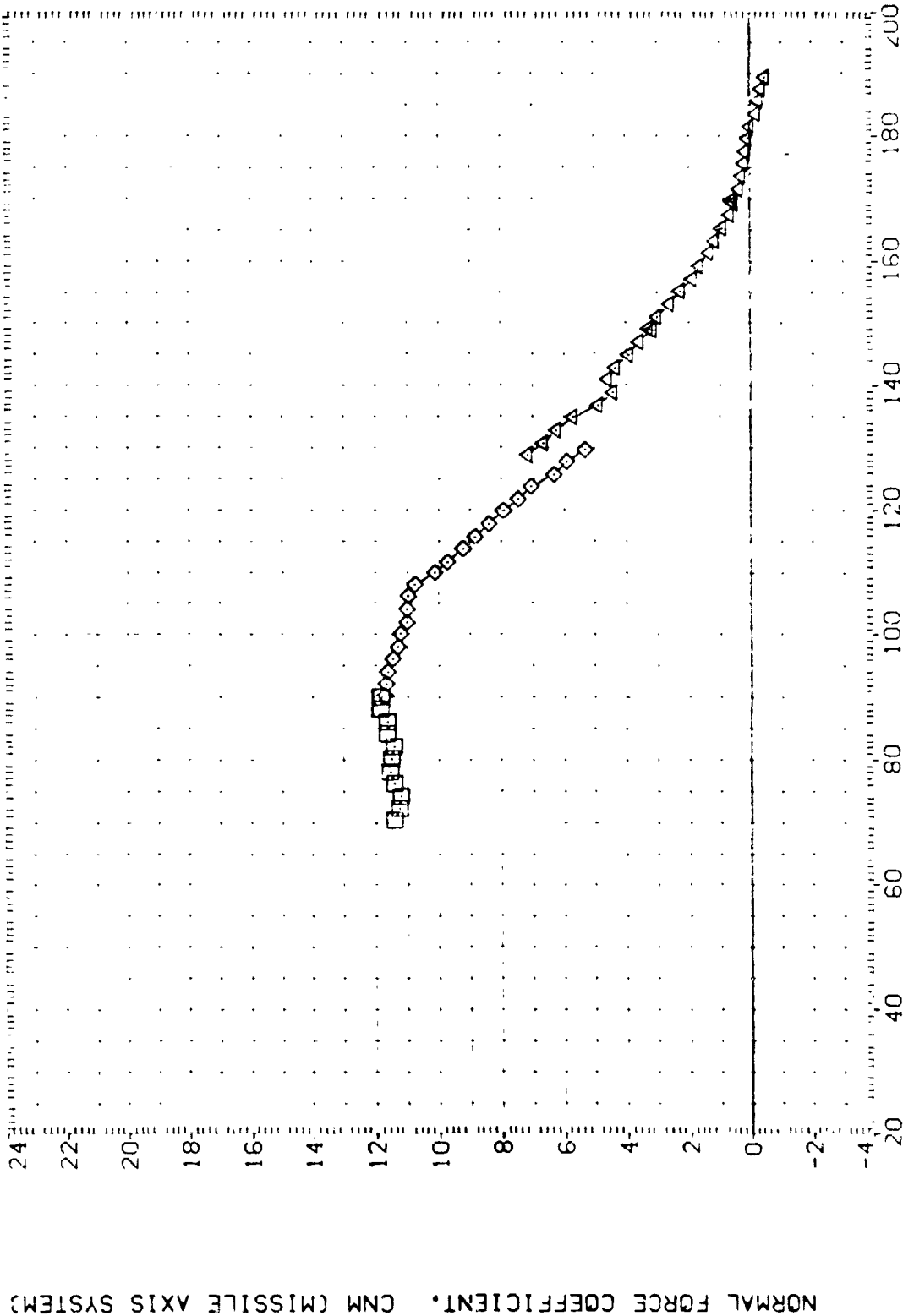


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION	PHI
(A)H008	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	270.000
(A)H008	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000
(A)H008	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000
(A)H008	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

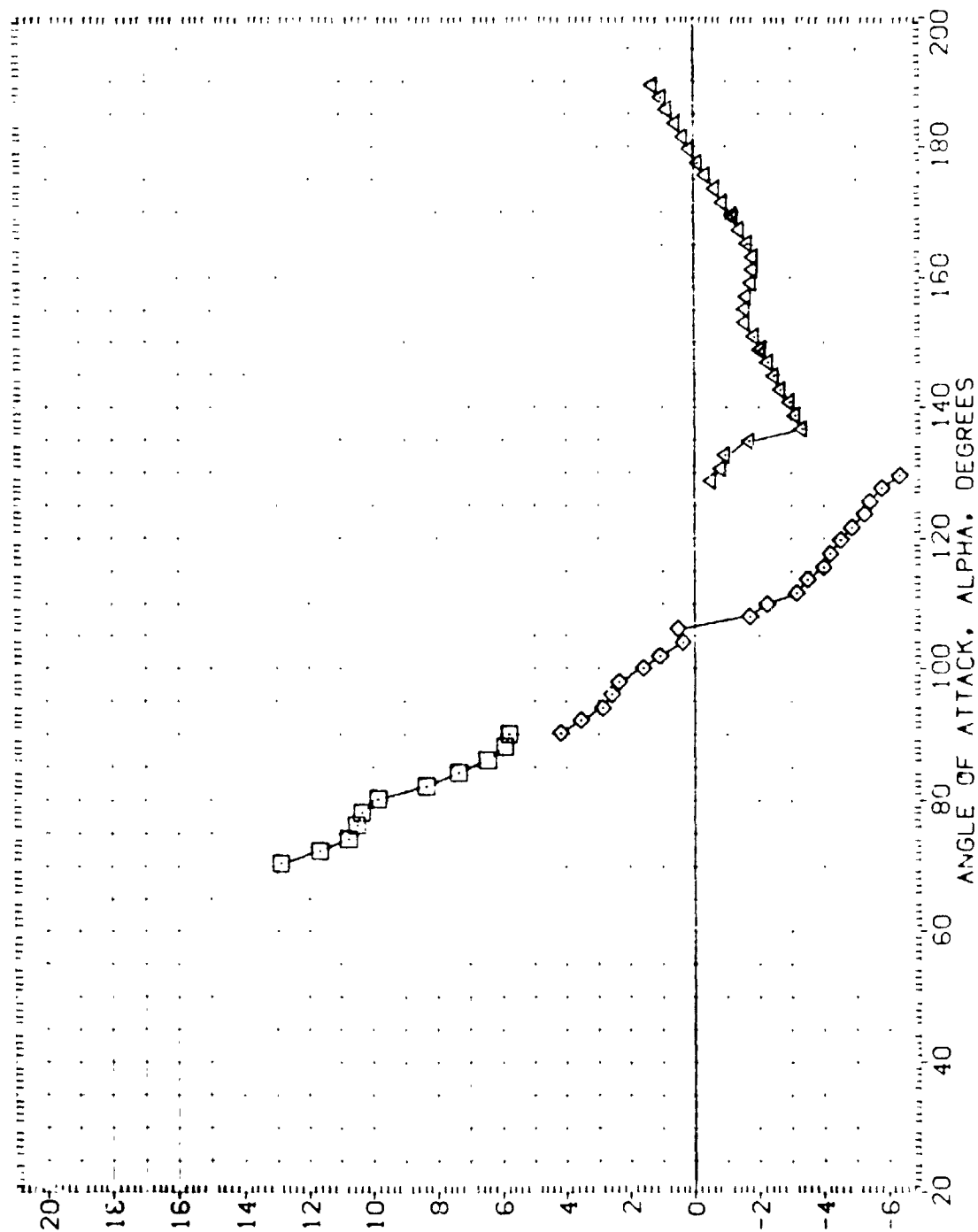


FIGURE 25. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 270.)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H008)	DATA NOT AVAILABLE	270.000	SREF .5030 IN.
(A)H058)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	REF .8030 IN.
(A)H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8030 IN.
(A)H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XREF 5.7210 IN.
			YREF .0030 IN.
			ZREF .0030 IN.
			SCALE .0035

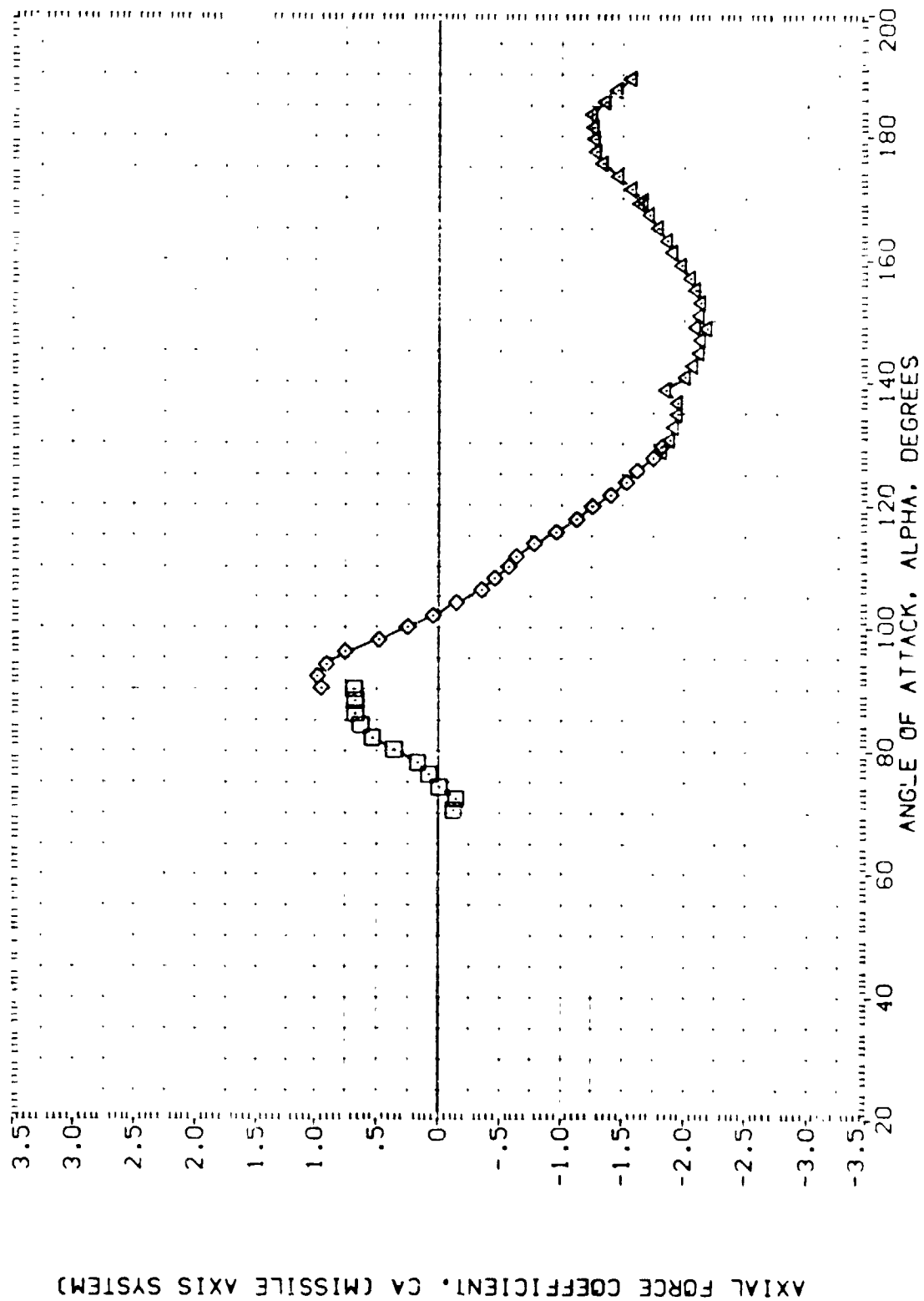


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)





DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H008)      DATA NOT AVAILABLE      270.000

(A1H066)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TV1604 (SABF) SP3 WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

SIDE FORCE COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

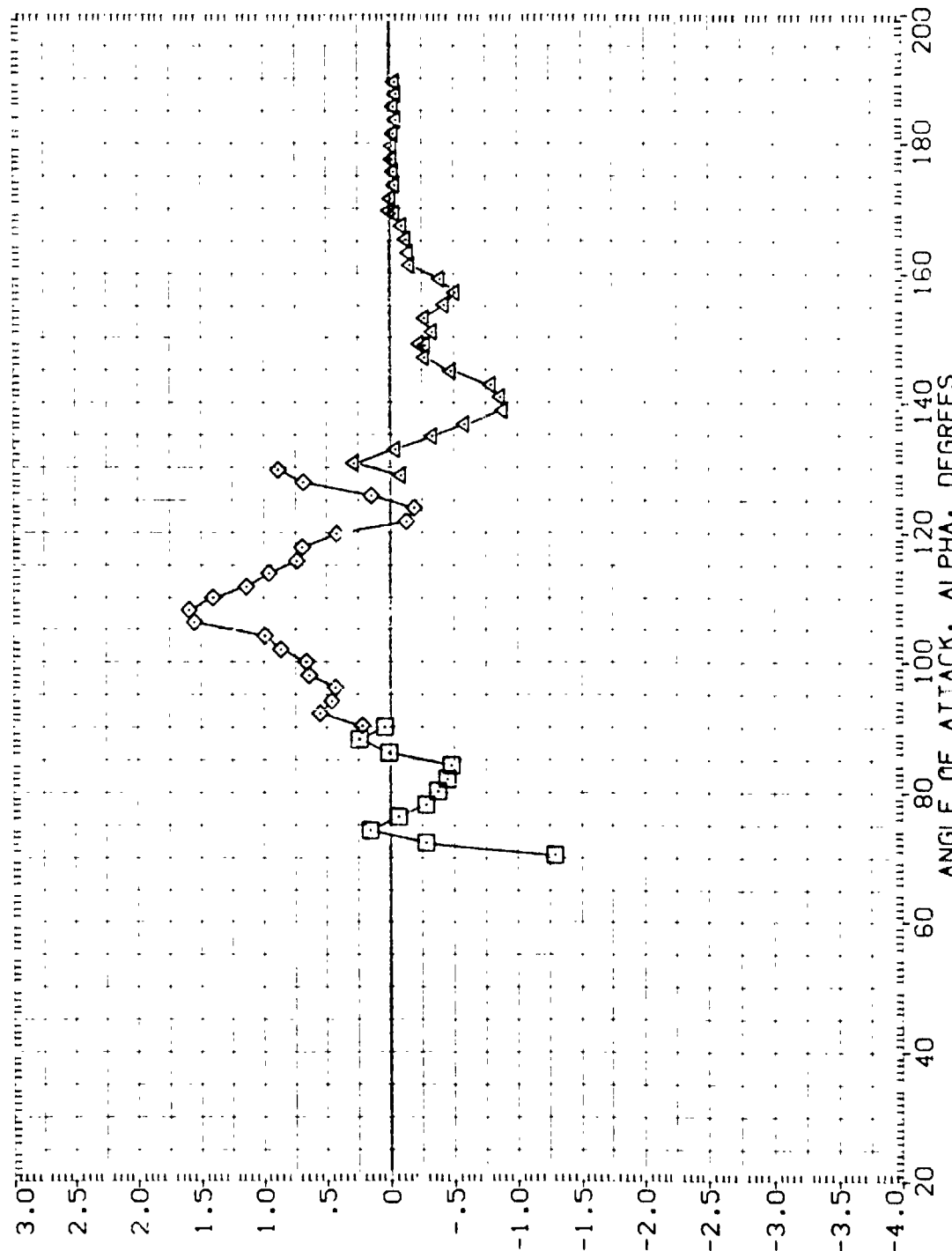


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(AIH008)    DATA NOT AVAILABLE    270.000

(AIH066)    MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES    270.000

(AIH008)    MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES    270.000

(AIH008)    MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES    270.000

REFERENCE INFORMATION

SREF    5030    IN.    SQ. IN.

LREF    8000    IN.

BREF    8000    IN.

XMRP    5.7710    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

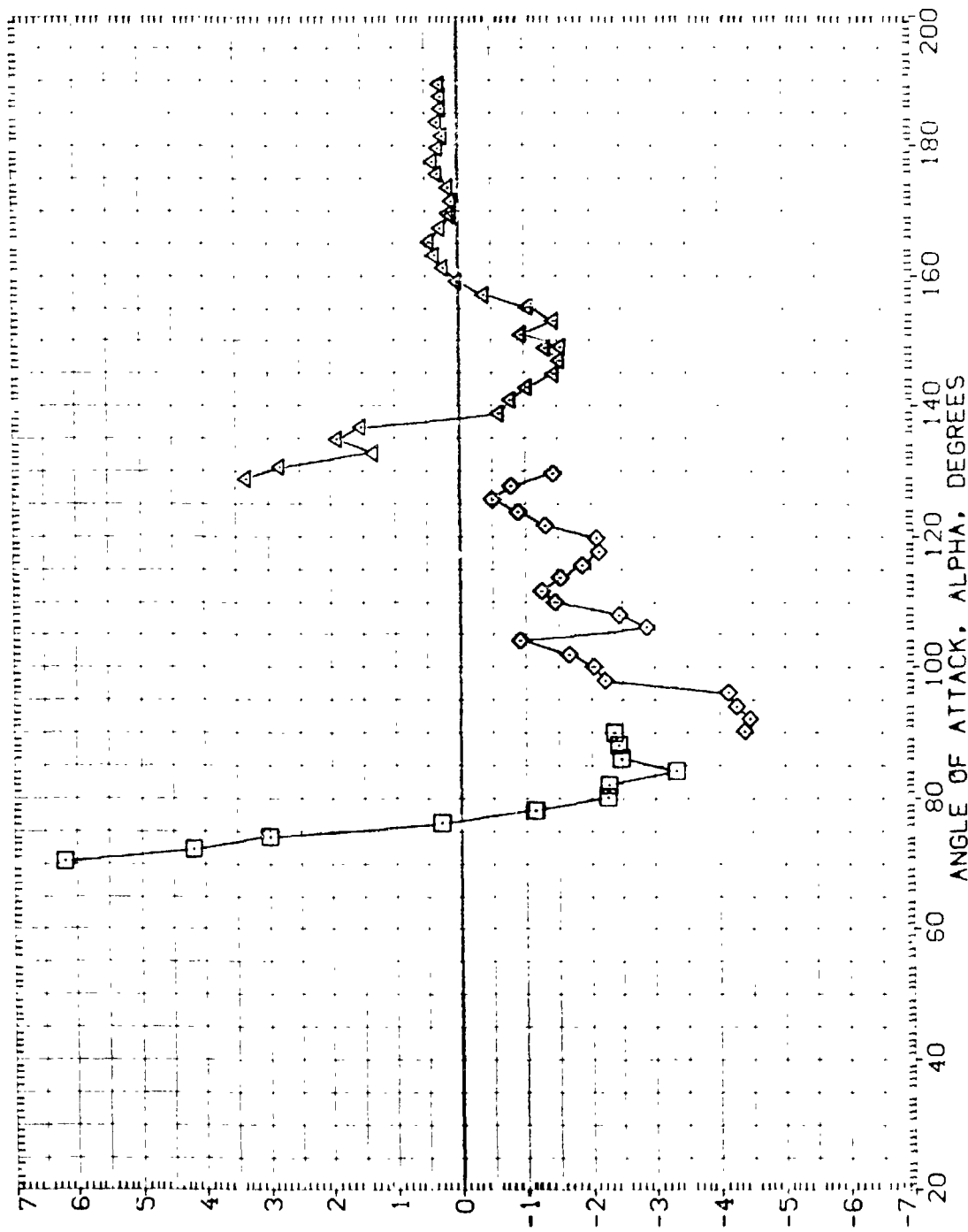


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 270)

(A) MACH = .40    PAGE 384

YAWING MOMENT COEFFICIENT, CYNM (MISSILE AXIS SYSTEM)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H008	DATA NOT AVAILABLE	270.000	SREF 5030 SQ. IN.
(A)H006	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	270.000	LREF 8000 IN.
(A)H008	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	270.000	BREF 8000 IN.
(A)H008	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

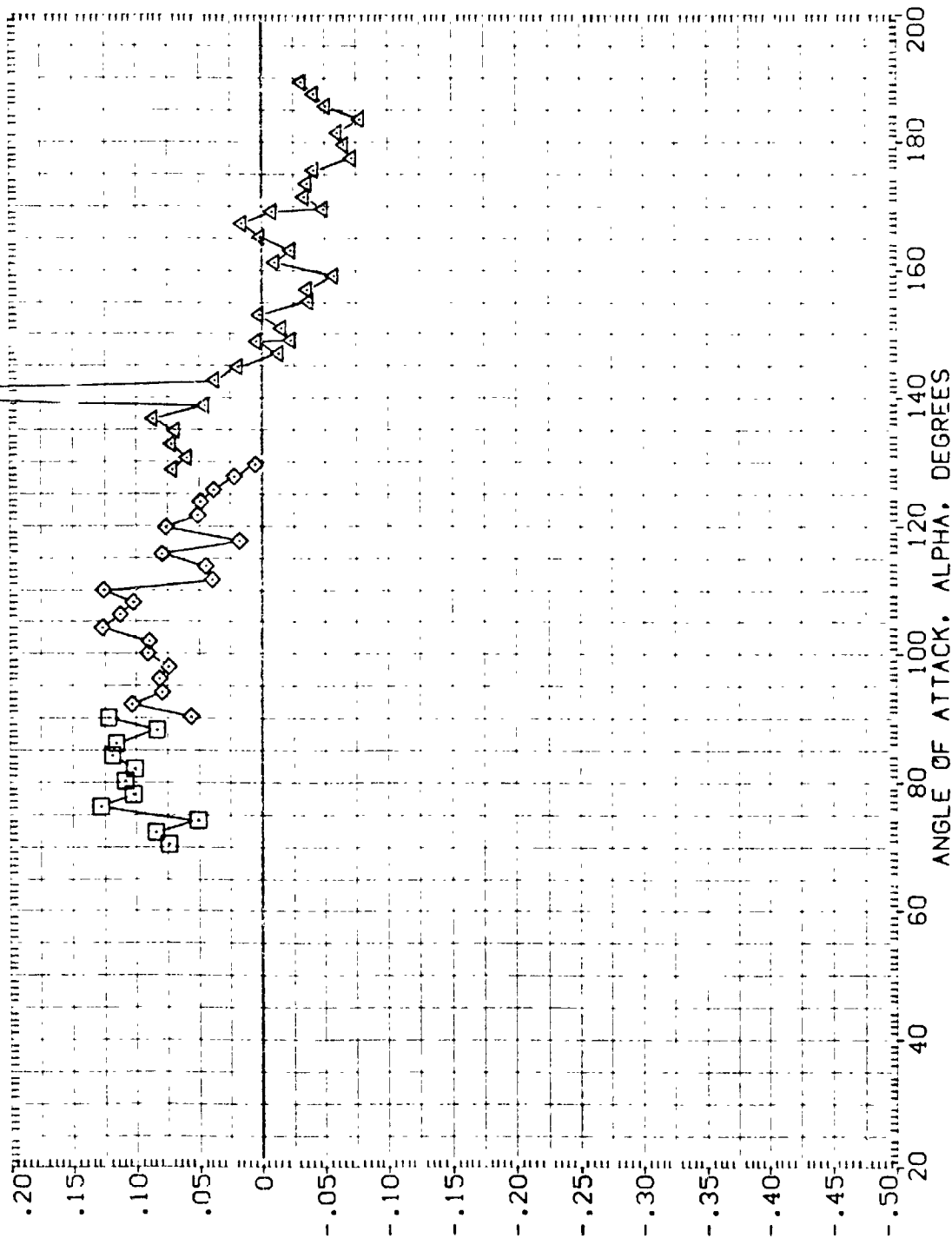


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(A)MACH = .40

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H008) DATA NOT AVAILABLE

(A1H066) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H008) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H008) MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

PHI

270.000

270.000

270.000

270.000

NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

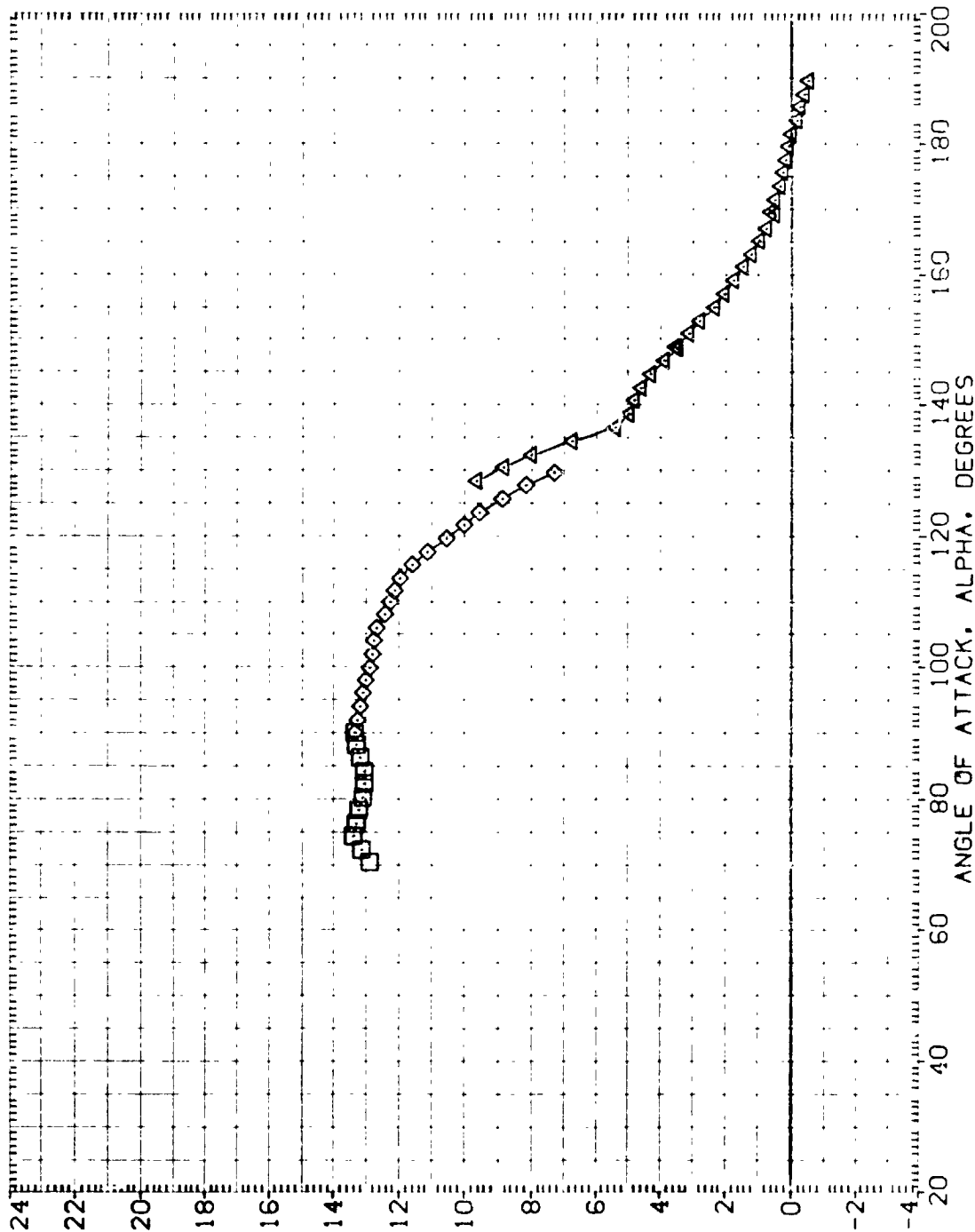


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B) MACH = .60

DATA SET SYMBOL: (A1H008) (A1H006) (A1H008) (A1H008)

CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES

PHI: 270.000 270.000 270.000 270.000

REFERENCE INFORMATION: SREF 5030 SQ. IN. LREF 8000 IN. BREF 9000 IN. XMRP 5.7210 IN. XS YMRP 5.0000 IN. YS ZMRP 3.0000 IN. ZS SCALE 3055

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

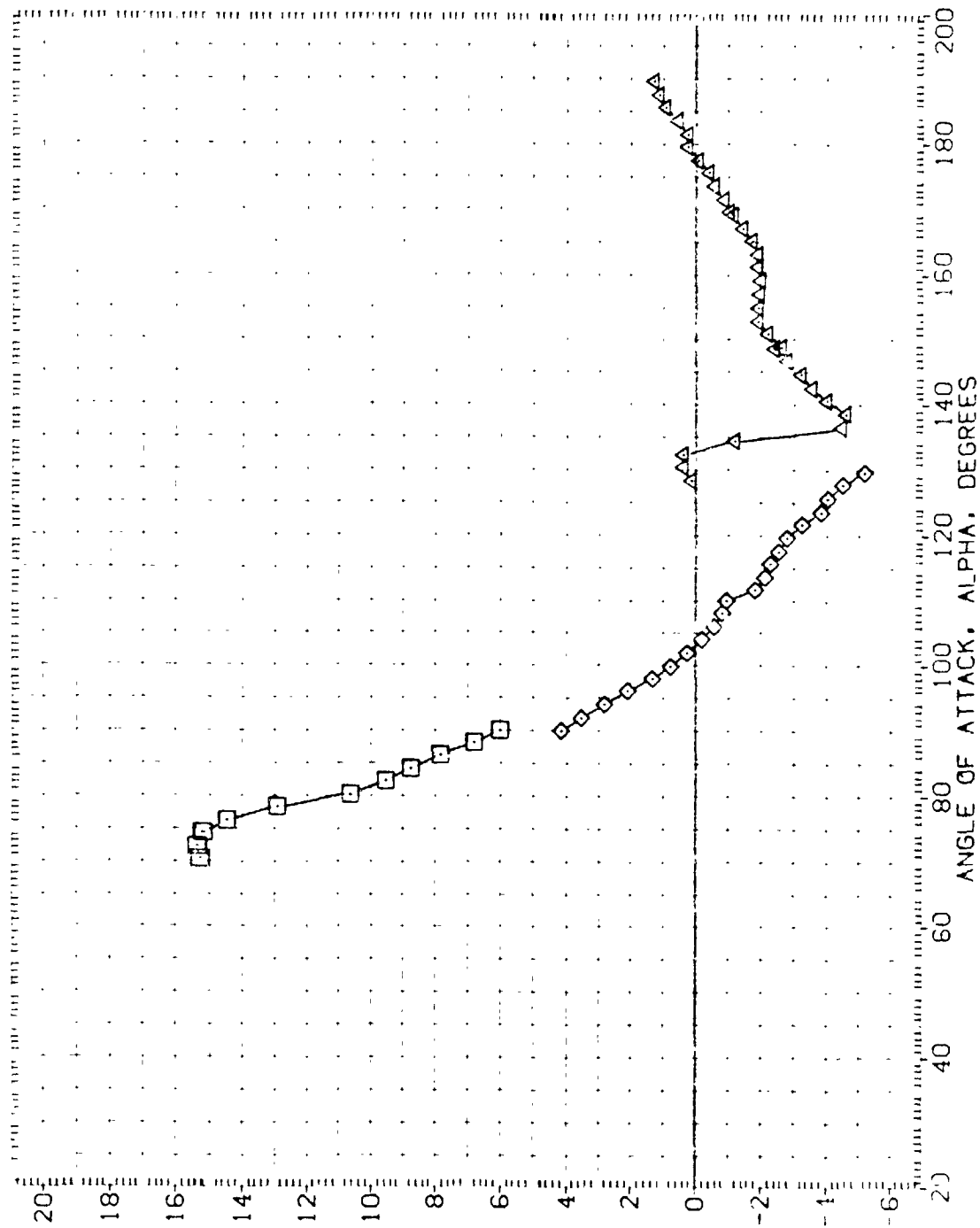


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B) MACH = 0.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A1HA08)	DATA NOT AVAILABLE
(A1H066)	MSEC TV1604 (SABF) SRB WITH
(A1H068)	MSEC TV1604 (SABF) SRB WITH
(A1H008)	MSEC TV1604 (SABF) SRB WITH

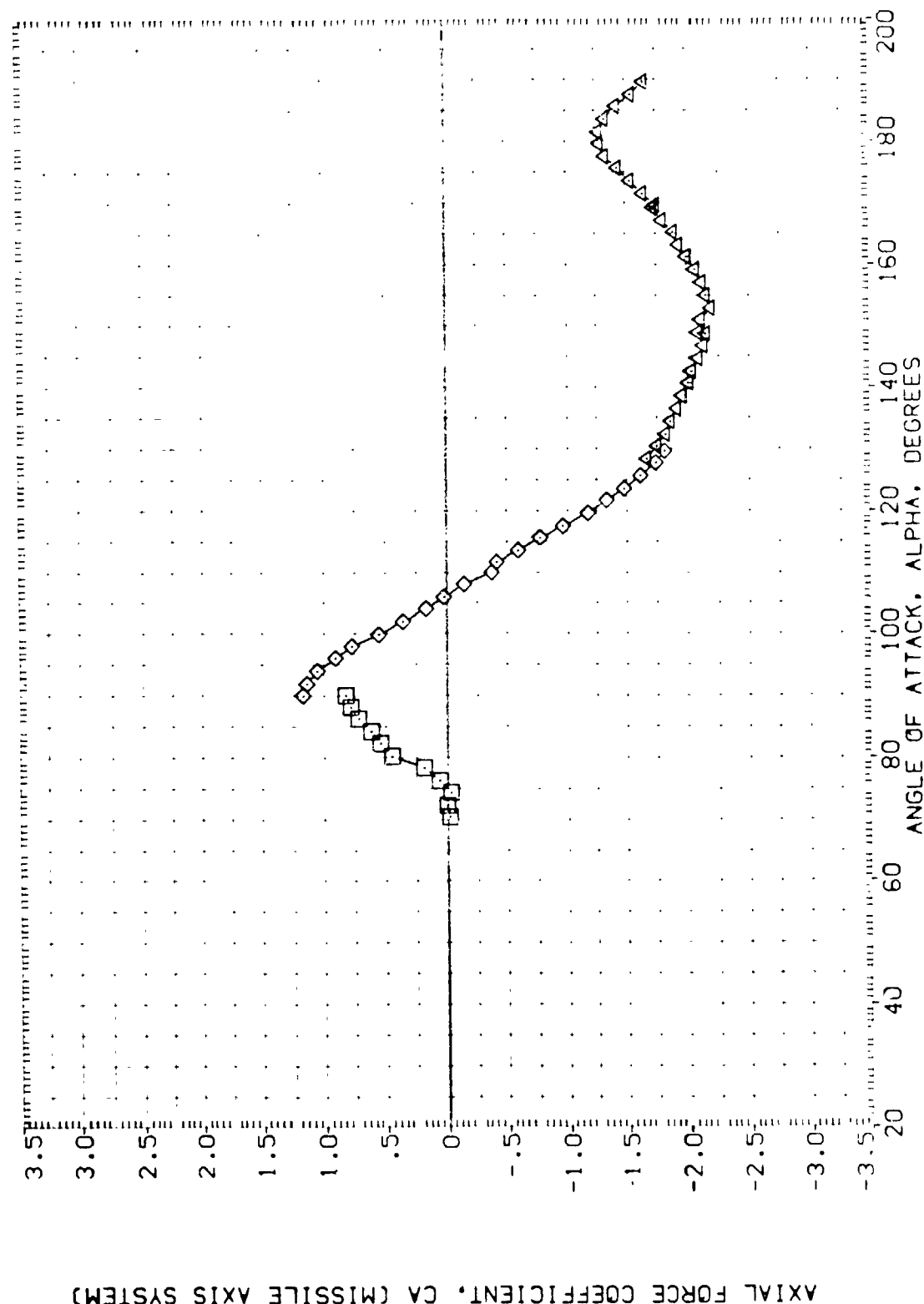


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\text{PHI} = 270^\circ$ )

(B)MACH = .60

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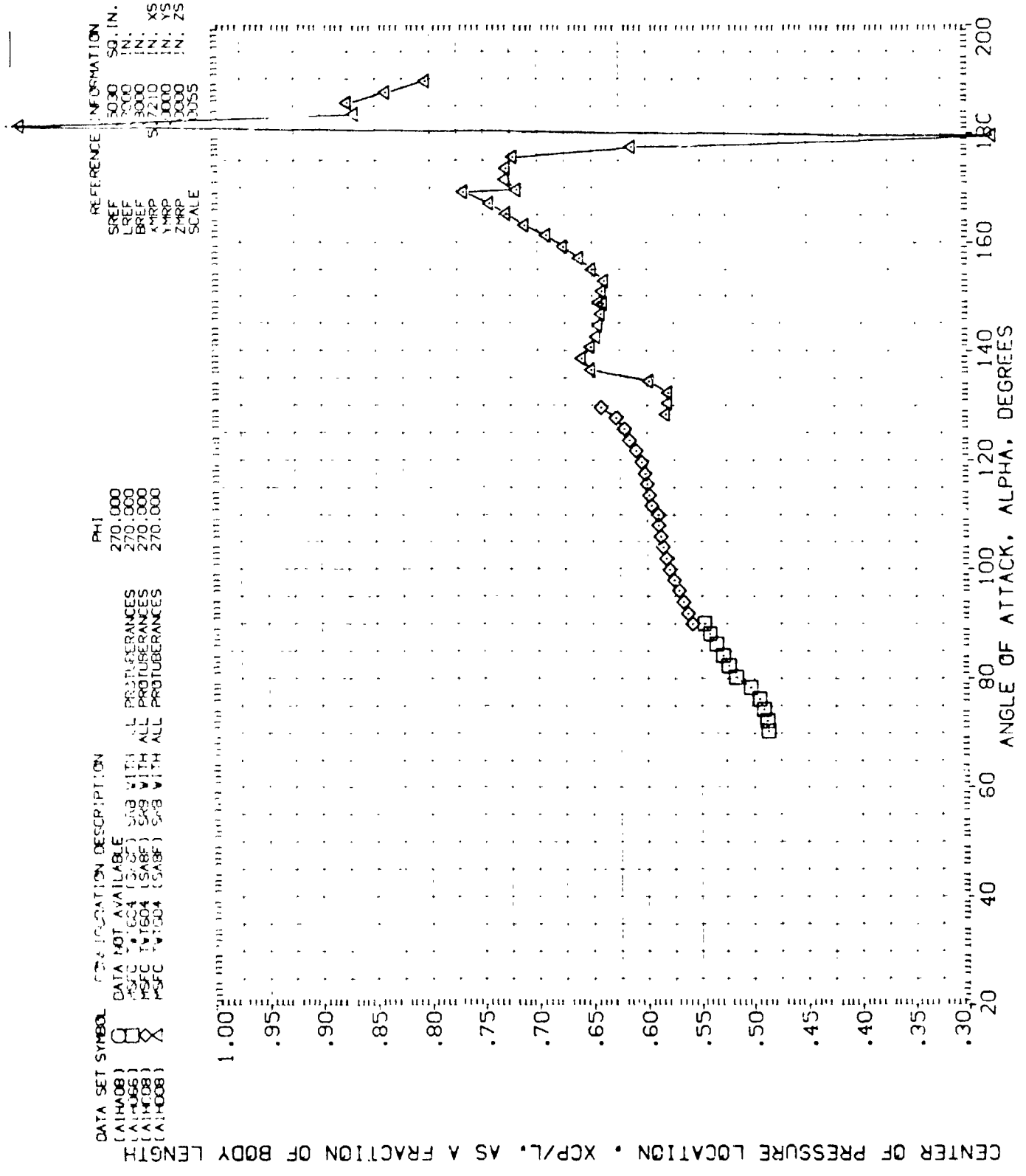


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WALL PROTUBERANCES (PHI = 270)

(MACH = 0.60)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SREF 5030 50. IN.
(A1H066)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SCALE 1.00
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP 210 IN. XS
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	ZMRP 1.00 IN. ZS
			SCALE 2.55

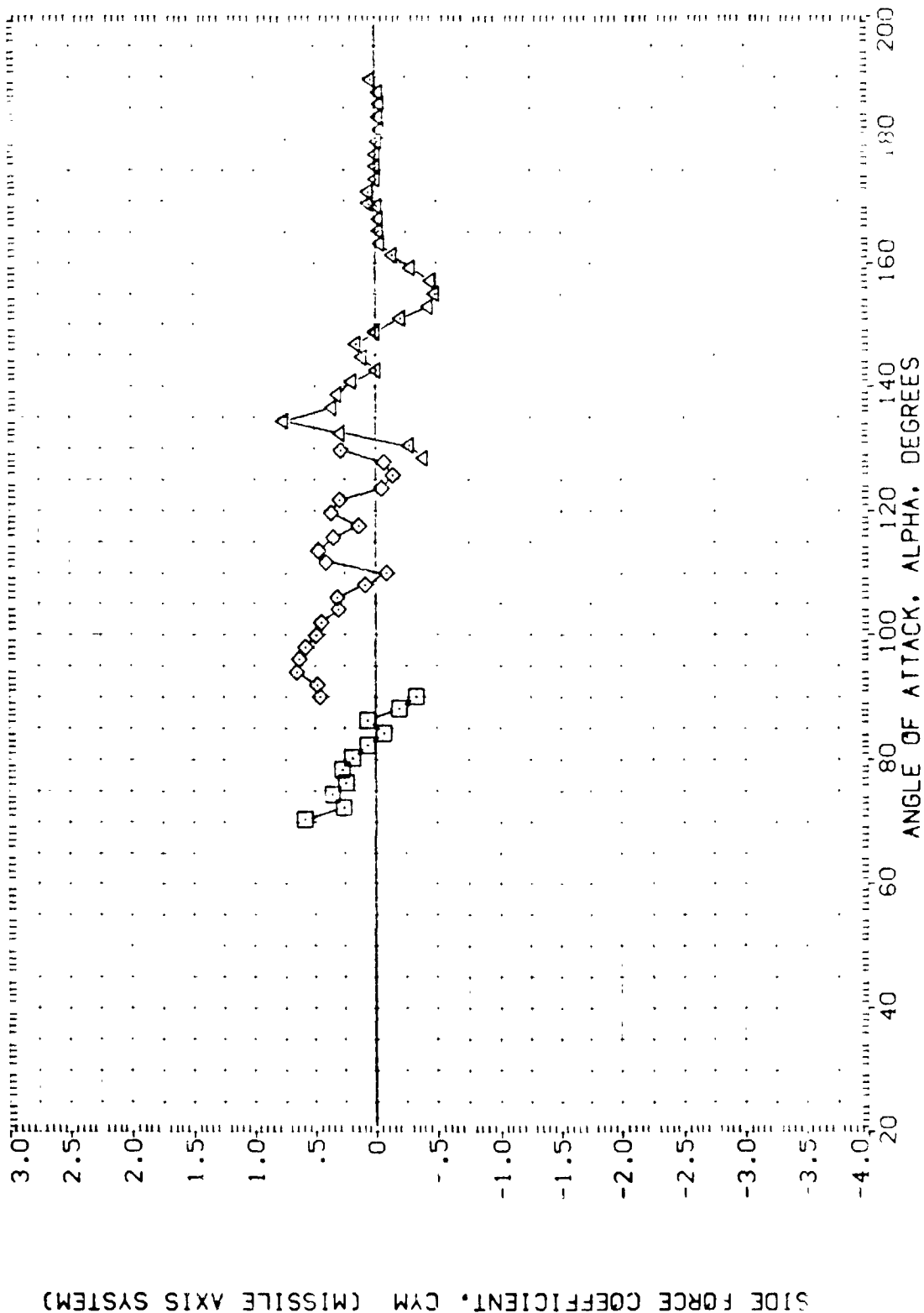


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(B)MACH = .60

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

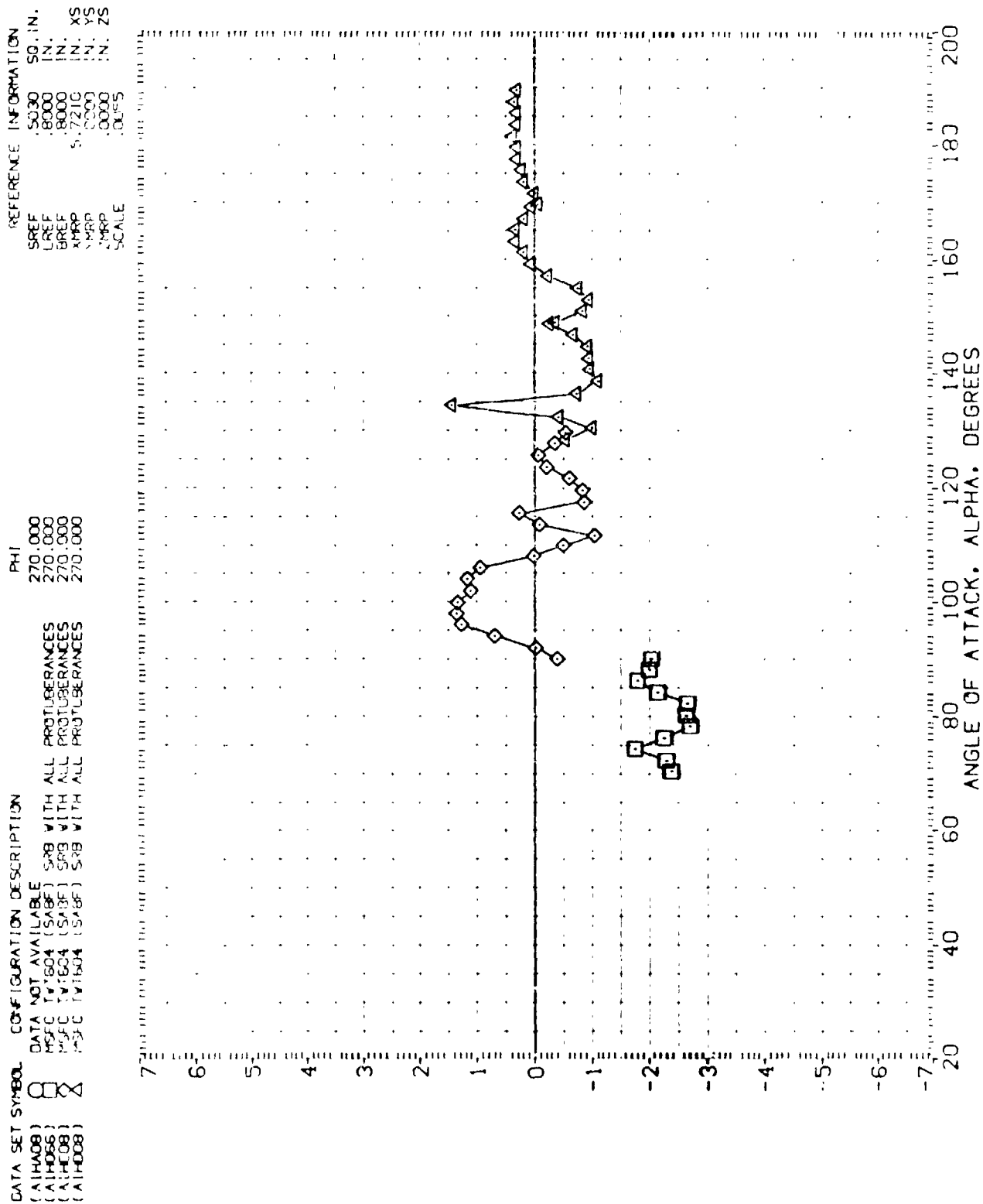


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B)MACH = .60

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(A1H408)      DATA NOT AVAILABLE      SRB WITH ALL PROTUBERANCES

(A1H406)      HSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H408)      HSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

(A1H408)      HSFC TVT604 (SABF)      SRB WITH ALL PROTUBERANCES

REFERENCE INFORMATION

SREF      50.00      IN.

LREF      80.00      IN.

BREF      80.00      IN.

XMRP      5.7210      IN.      XS

YMRP      0.0000      IN.      YS

ZMRP      0.0000      IN.      ZS

SCALE      0.0055

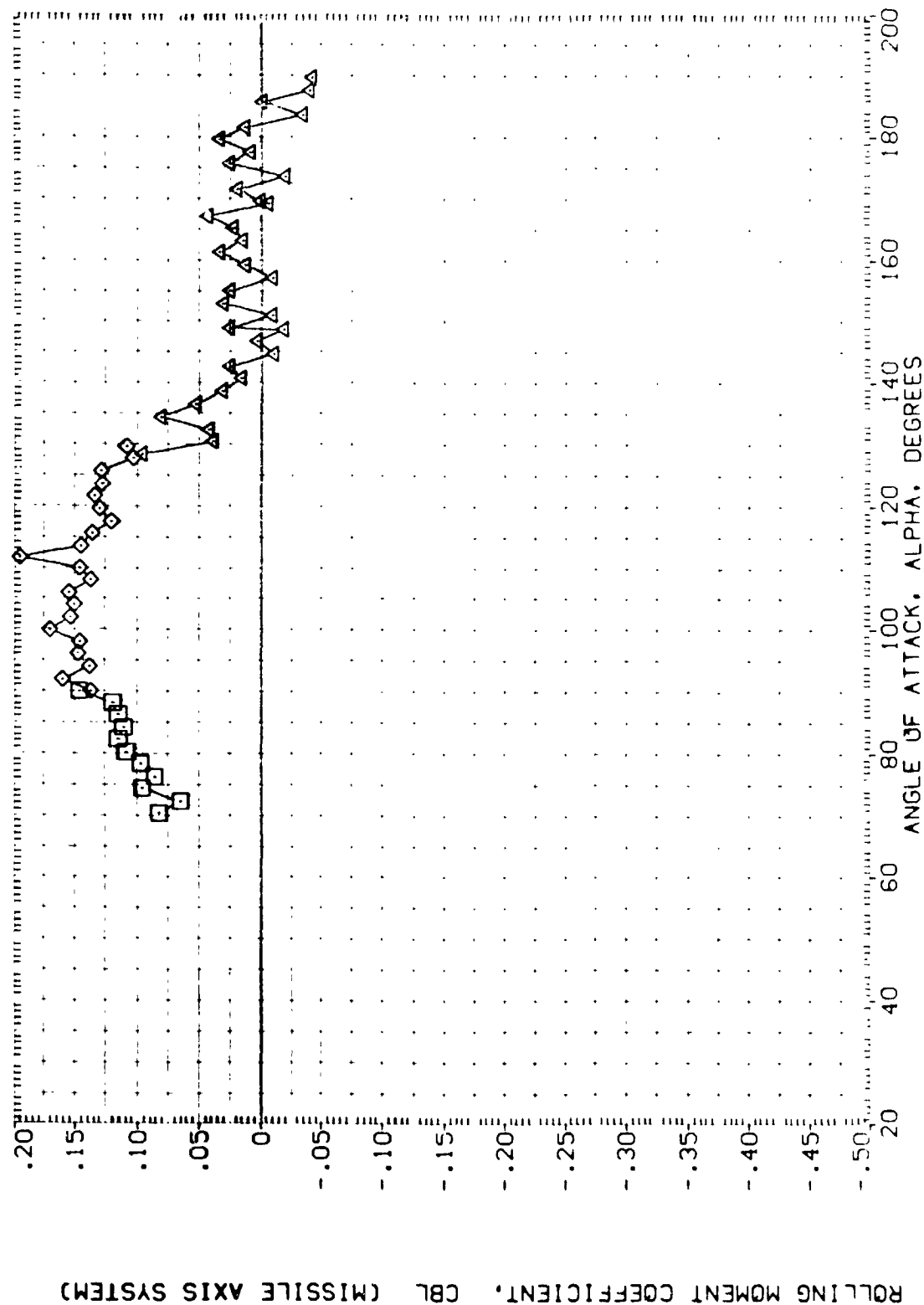


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H008)    DATA NOT AVAILABLE    270.000

(A1H066)    MSFC T4T604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

(A1H008)    MSFC T4T604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

(A1H008)    MSFC T4T604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

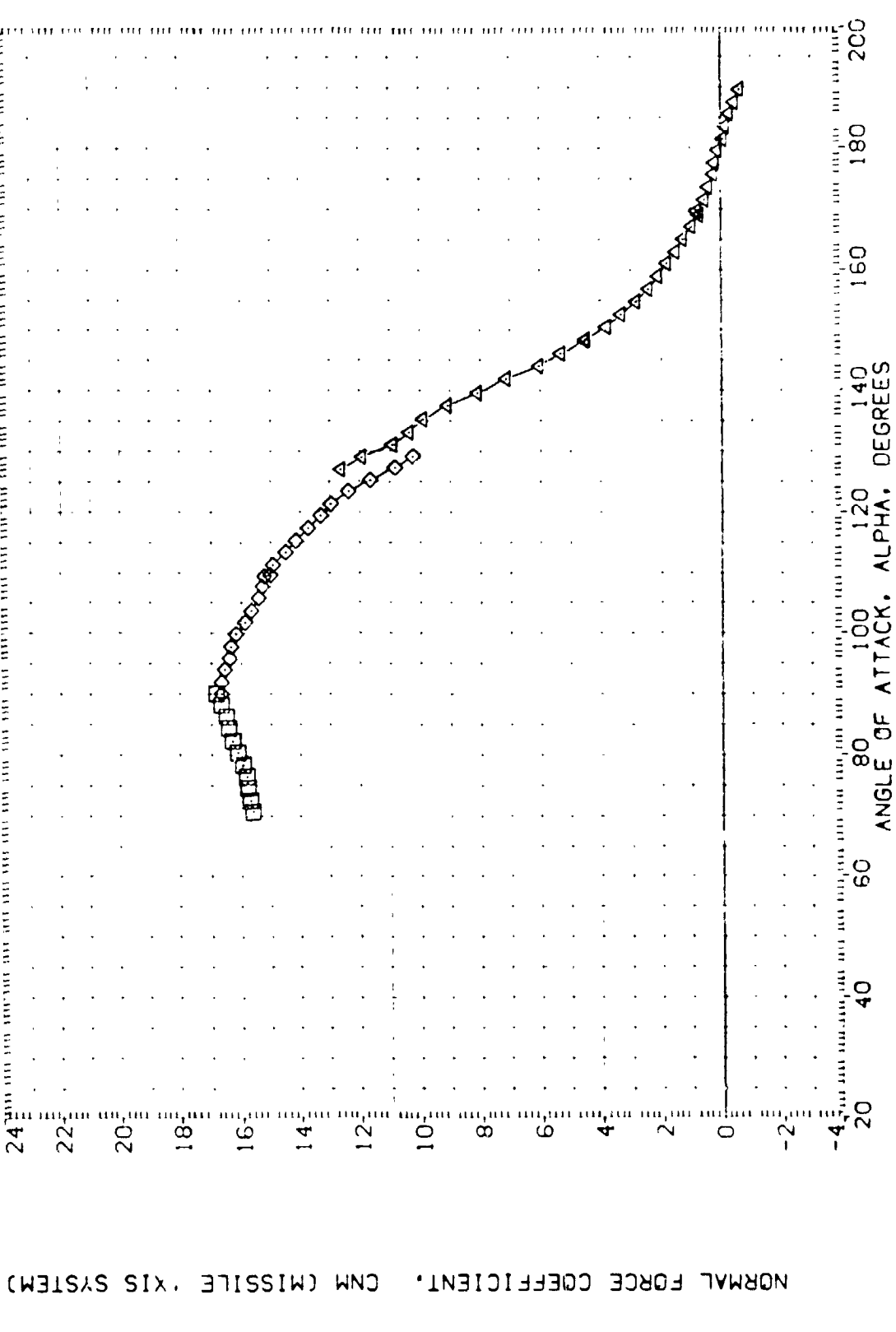


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.18000	IN.
BREF	.18000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PHI

270.000
270.000
270.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(AIH008)	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES
(AIH066)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH008)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
(AIH008)	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES

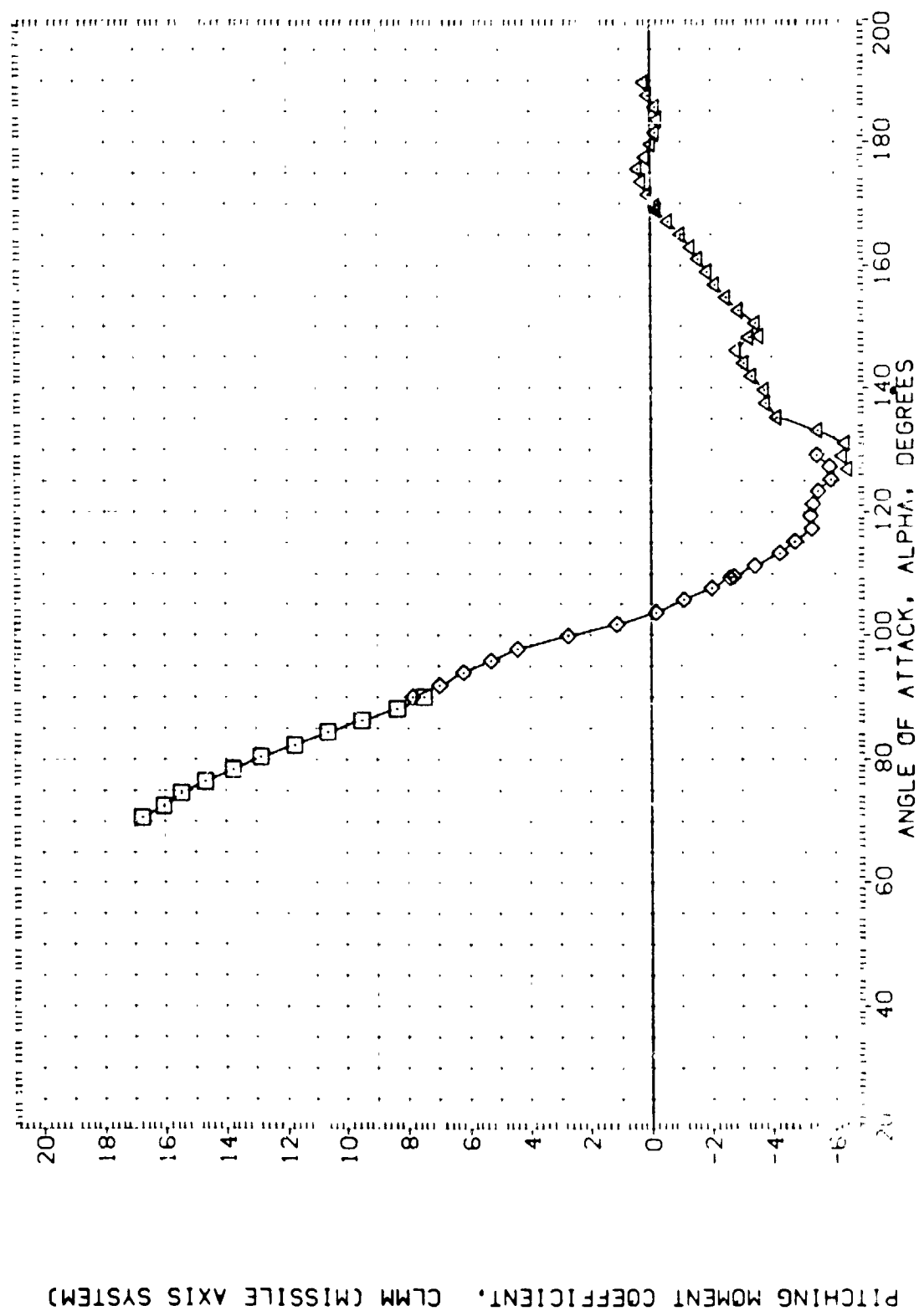


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI	
(A)H008	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	270.000		
(A)H006	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000		
(A)H008	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000		
(A)H008	MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES	270.000		

REFERENCE INFORMATION	
SREF	5.100
LREF	5.100
BREF	5.100
XPRP	5.7210
YPRP	0.000
ZPRP	0.000
SCALE	.0055

AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

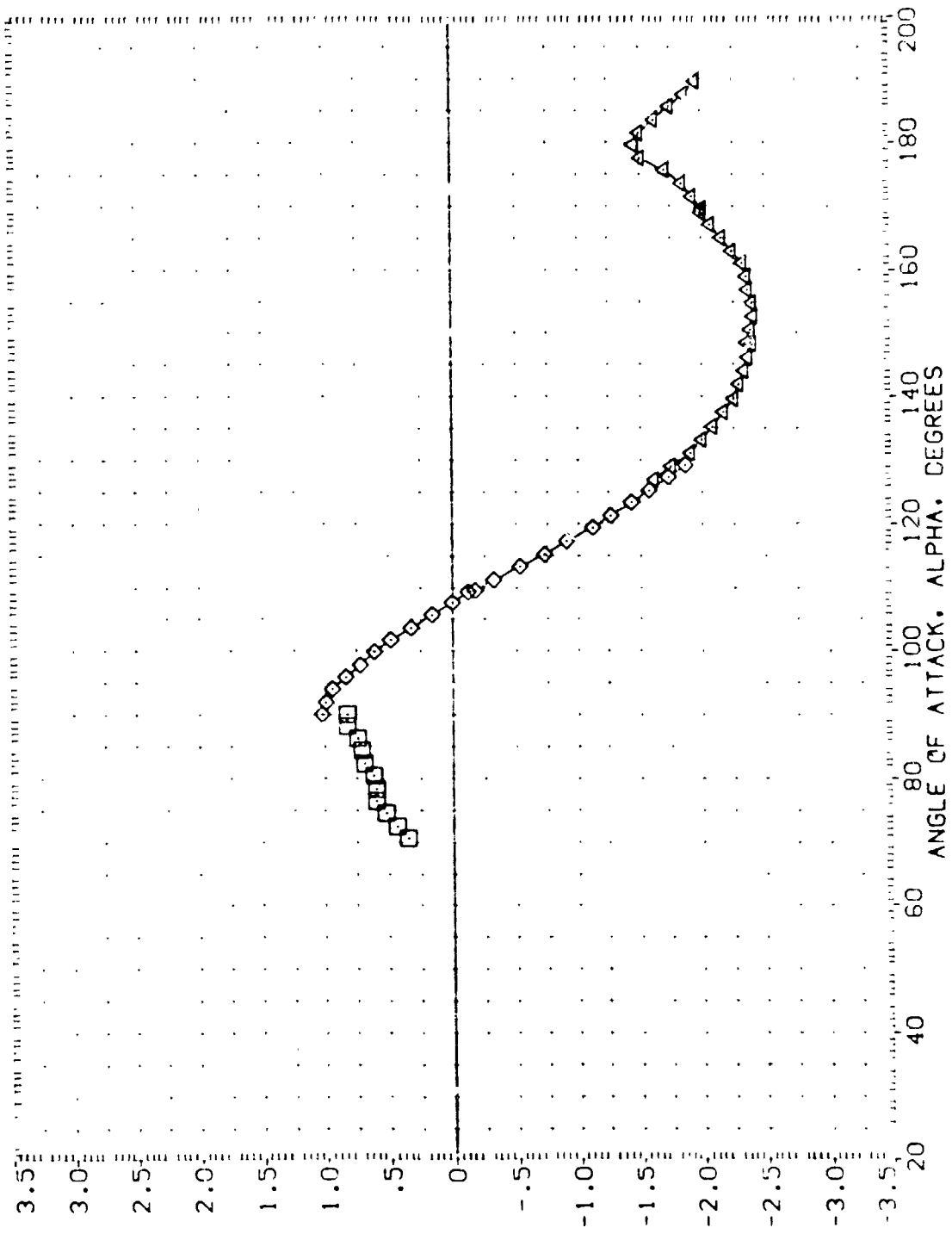


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL CONFIGURATION DESCRIPTION PHI

(A1H08)	DATA NOT AVAILABLE	270.000
(A1H06)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000
(A1H08)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000
(A1H08)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000

PERFORMANCE INFORMATION

SCALE	1000	IN.
REF	1000	IN.
REF	1000	IN.
MAP	5.000	IN.
MAP	1000	IN.
MAP	1000	IN.
SCALE	1000	IN.

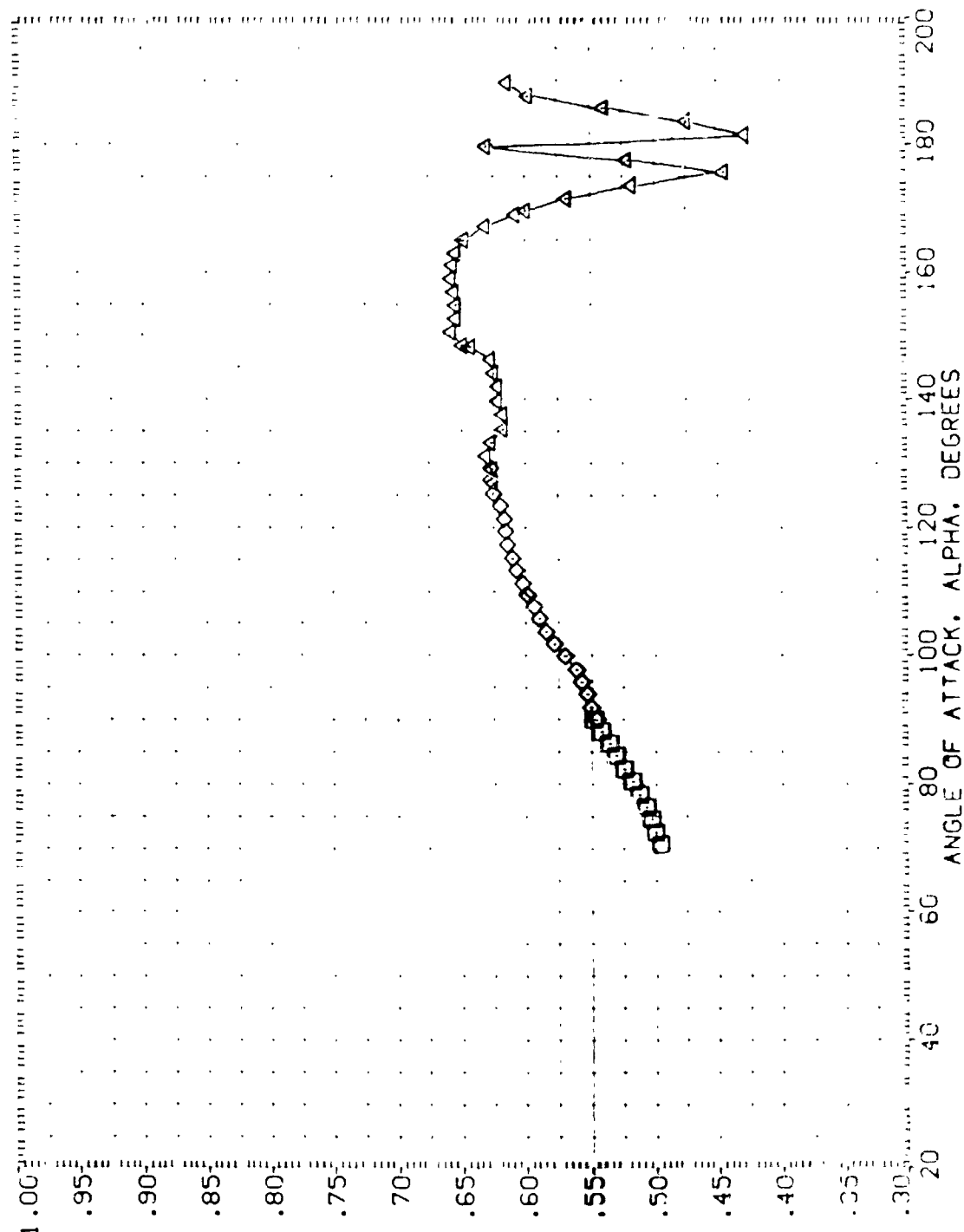


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(C)MACH = 0.90

# DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H008) DATA NOT AVAILABLE SR8 WITH ALL PROTUBERANCES  
 (A1H066) MSFC TW1604 (SABF) SR8 WITH ALL PROTUBERANCES  
 (A1H008) MSFC TW1604 (SABF) SR8 WITH ALL PROTUBERANCES  
 (A1H008) MSFC TW1604 (SABF) SR3 WITH ALL PROTUBERANCES

PHI

270.000  
 270.000  
 270.000  
 270.000

# REFERENCE INFORMATION

SREF 5030 50. IN.  
 LREF 5030 50. IN.  
 BRCF 5000 50. IN.  
 XMRP 5.7210 50. IN.  
 YMRP 3000 50. IN.  
 ZMRP 3000 50. IN.  
 SCALE 3055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

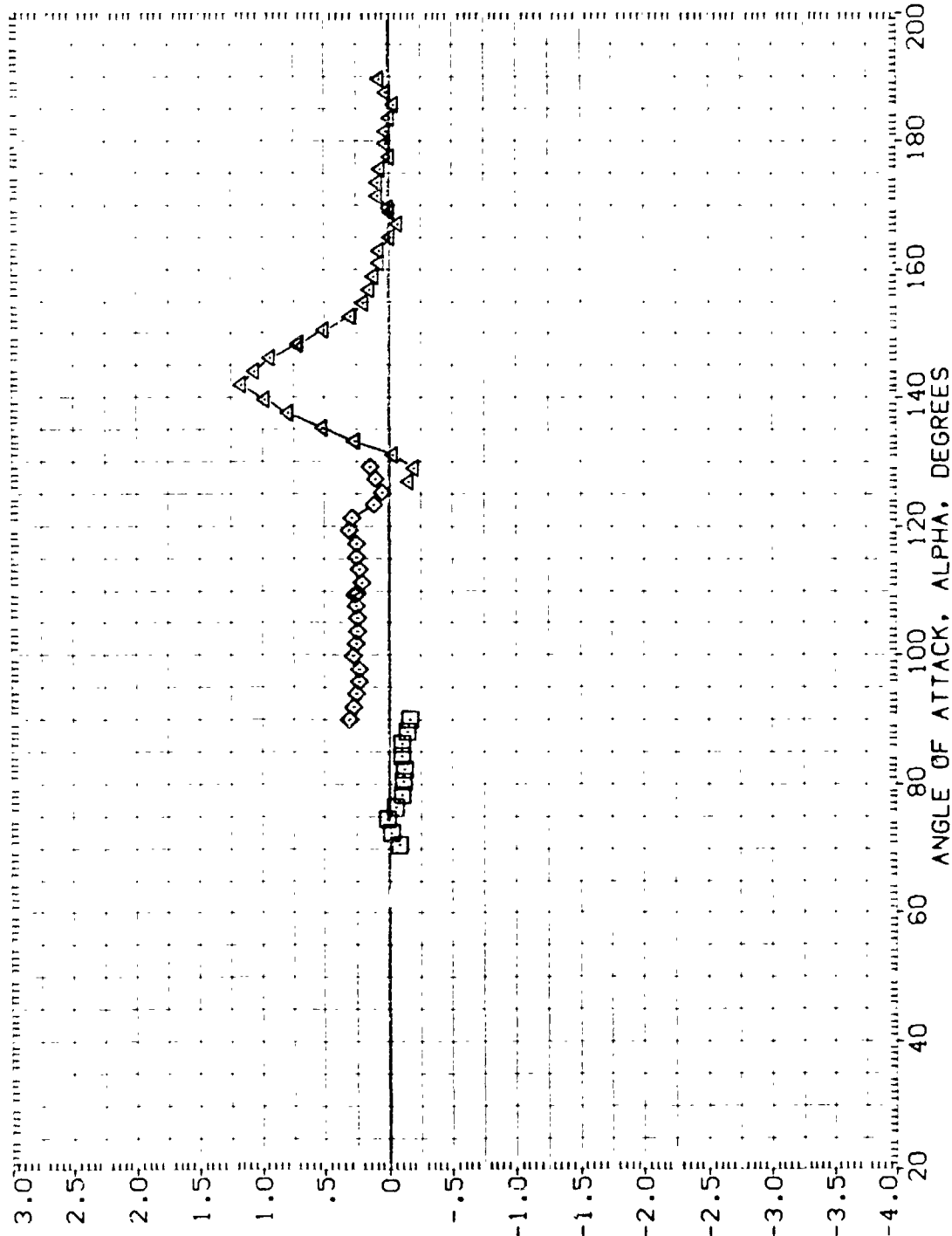


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SR8 WITH ALL PROTUBERANCES (PHI = 270)

(C)MACH = .90



DATA SET SYMBOL    CONFIGURATION DESCRIPTION

(AIH008)    DATA NOT AVAILABLE    SRB WITH ALL PROTUBERANCES

(AIH066)    MSFC TVT604 (SA8F)    SRB WITH ALL PROTUBERANCES

(AIH008)    MSFC TVT604 (SA8F)    SRB WITH ALL PROTUBERANCES

(AIH008)    MSFC TVT604 (SA8F)    SRB WITH ALL PROTUBERANCES

PHI

270.000

270.000

270.000

270.000

REFERENCE INFORMATION

SREF    50.30    IN.

LREF    8000    IN.

RREF    8000    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

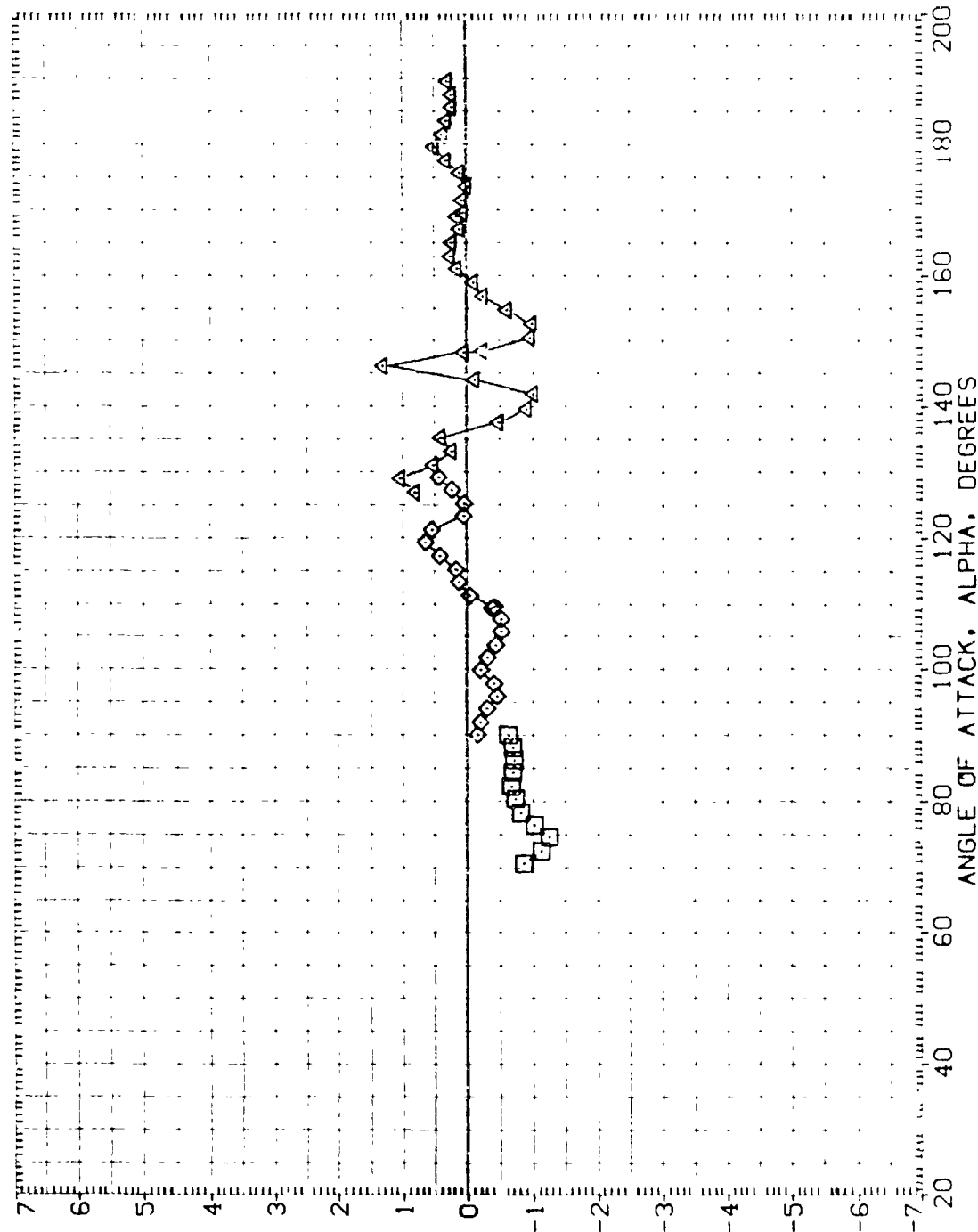


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(C)MACH = .90

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H008)      DATA NOT AVAILABLE      270.000

(A1H066)      MSFC TVTSC4 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVTSC4 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVTSC4 (SABF) SRB WITH ALL PROTUBERANCES      270.000

REFERENCE INFORMATION

SREF .5030 SQ. IN.

LREF .9000 IN.

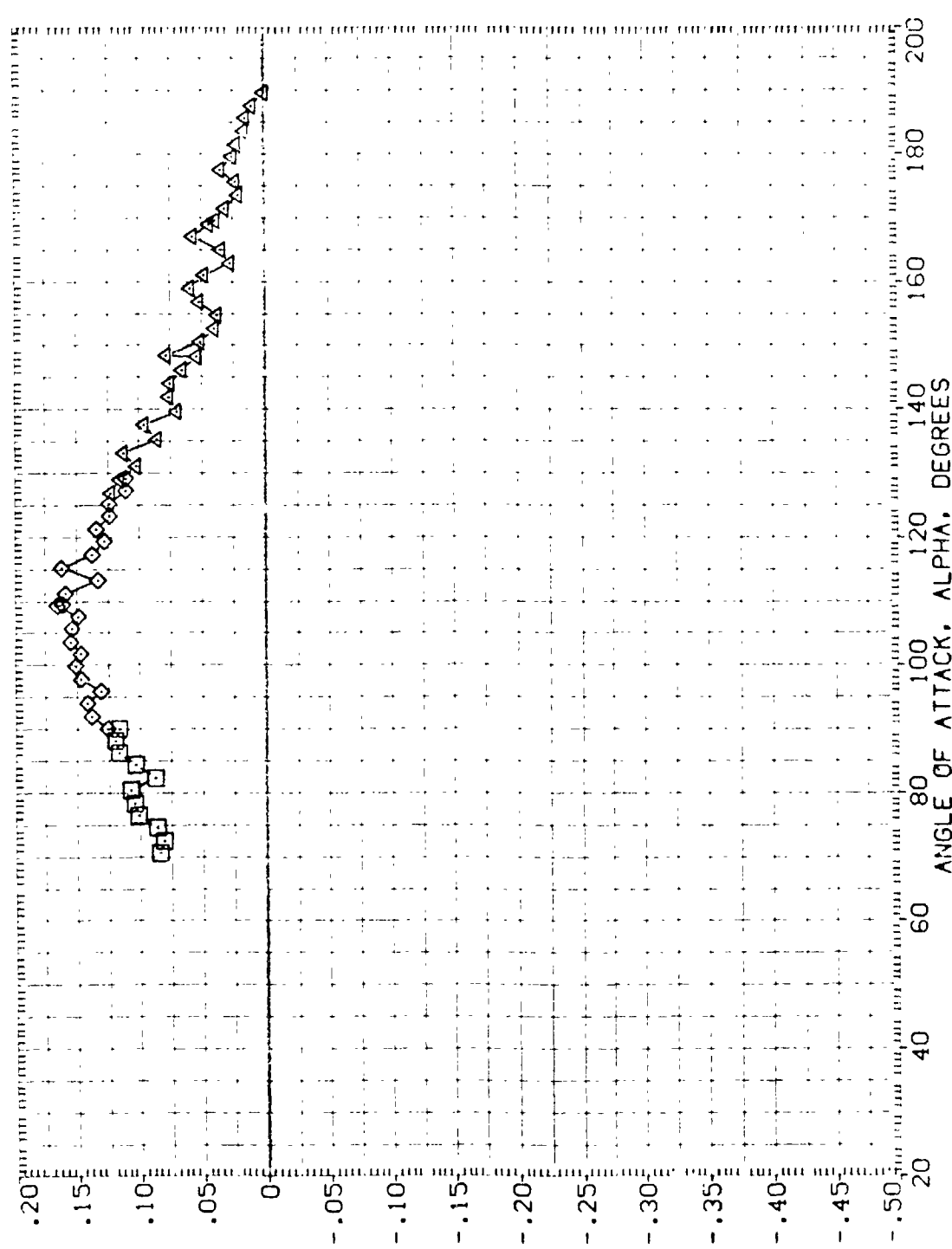
BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055



ROLLING MOMENT COEFFICIENT, CRL (MISSILE AXIS SYSTEM)

FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SREF 5030 IN.
(A1H006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF 8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF 8000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XRRP 5 7210 IN.
			YRRP 0000 IN.
			ZRRP 0000 IN.
			SCALE 0055

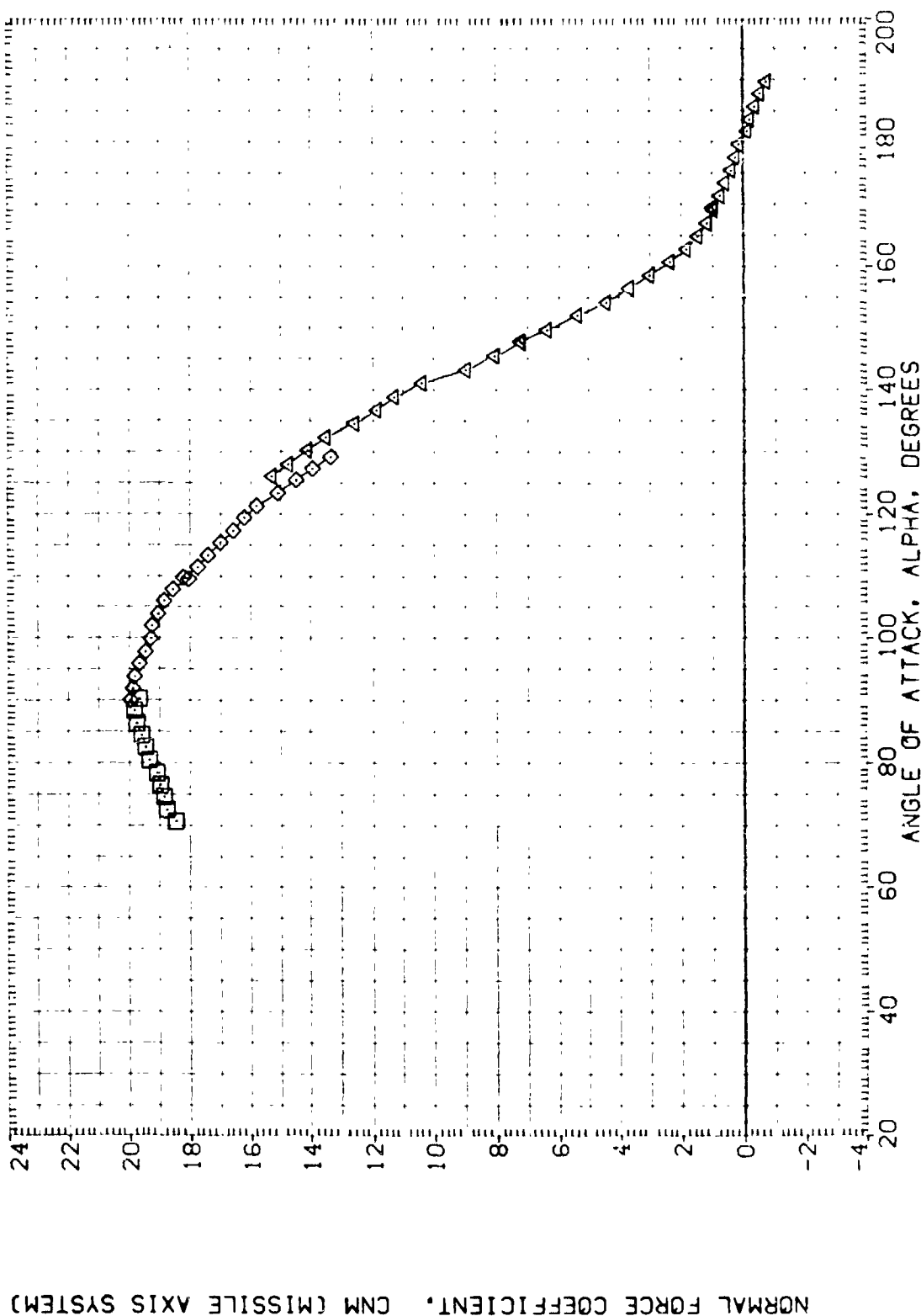


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H08)	DATA NOT AVAILABLE	270.000	SREF .5030 SQ.IN.
(A1H066)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A1H08)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	RREF .8000 IN.
(A1H08)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

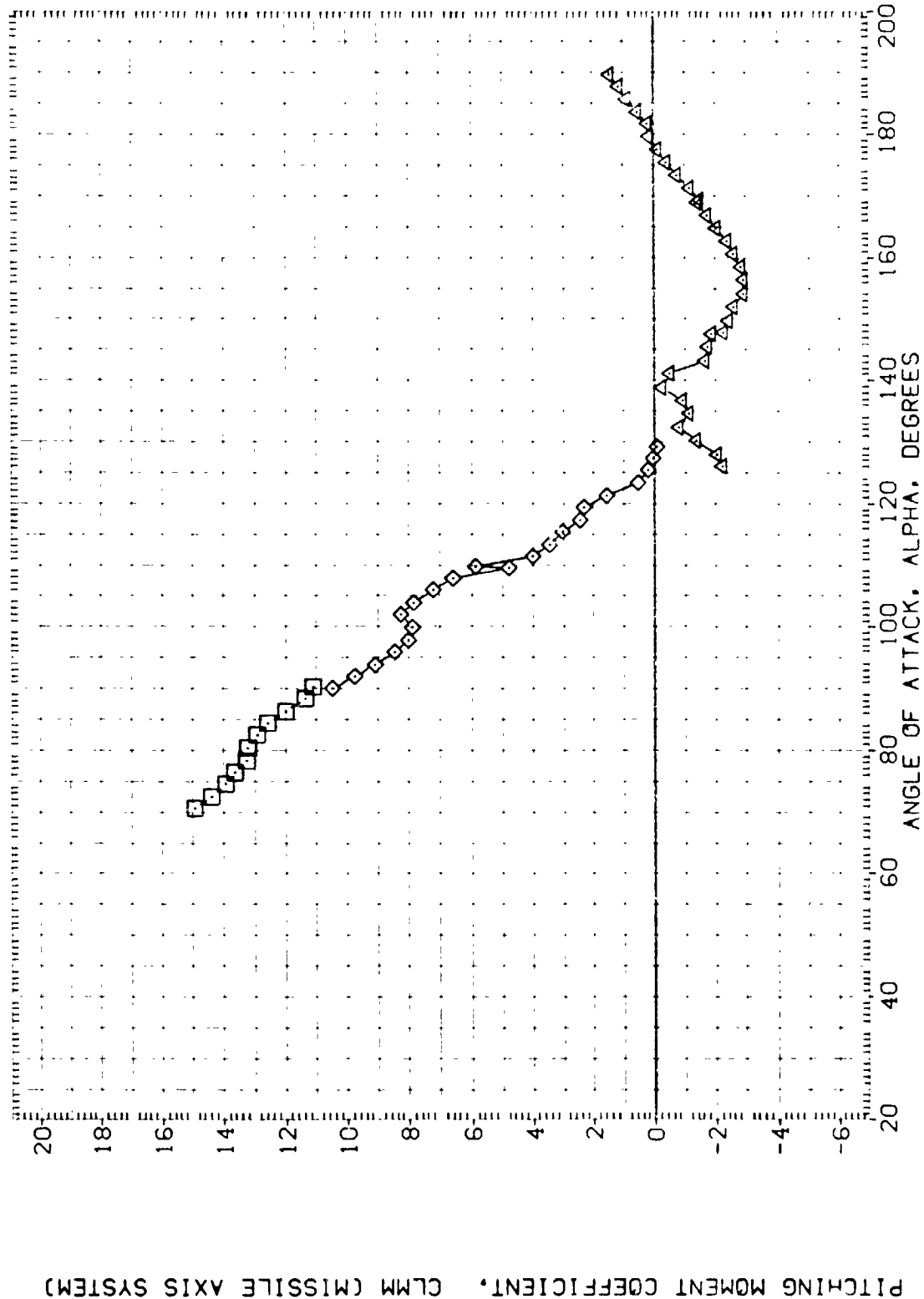


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H408)	DATA NOT AVAILABLE	270.000	SREF .5030 SQ.IN.
(A1H406)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A1H408)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	GRF .5120 IN.
(A1H408)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	MRP 5.7210 IN.
			XS
			YS
			ZS
			SCALE .0055

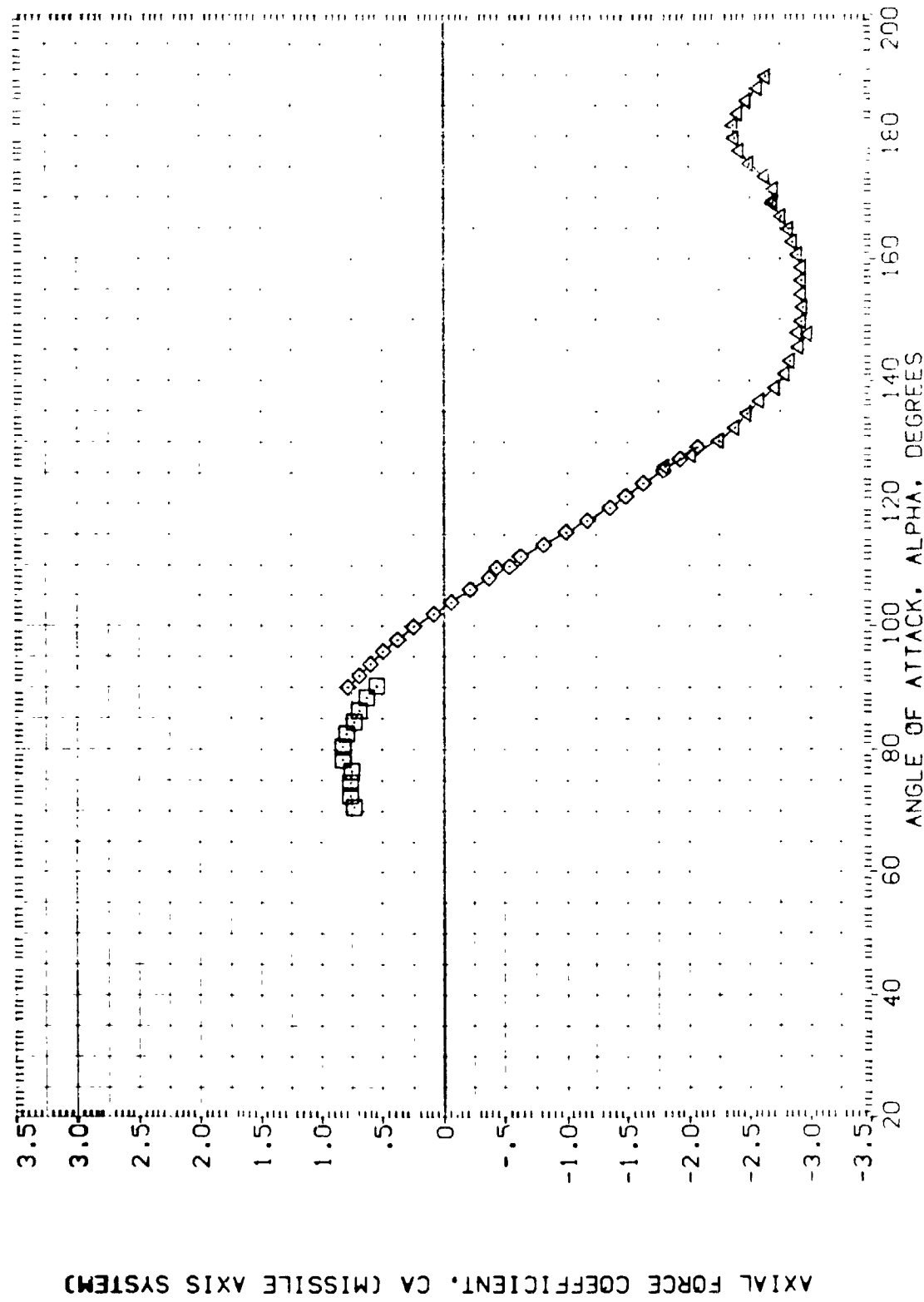


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H008)      DATA NOT AVAILABLE      270.000

(A1H066)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

REFERENCE INFORMATION

SREF      50.30      IN.

LREF      8000      IN.

BREF      8000      IN.

XMRP      5      IN.

YMRP      7210      IN.

ZMRP      0000      IN.

SCALE      0055      IN.

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

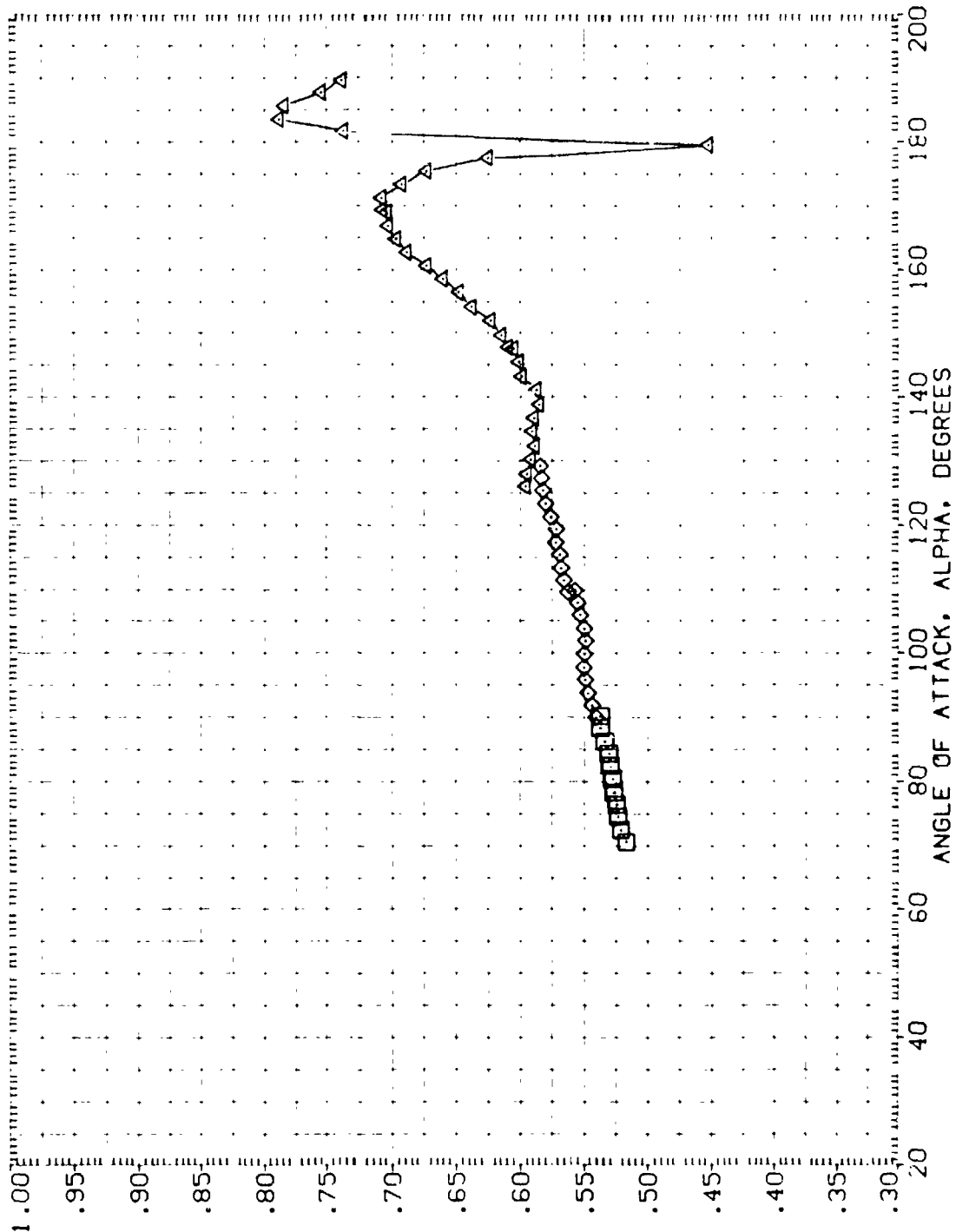


FIGURE 25. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 270)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HAG8)	DATA NOT AVAILABLE	270.000	SREF .5030 SQ. IN.
(A1H066)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

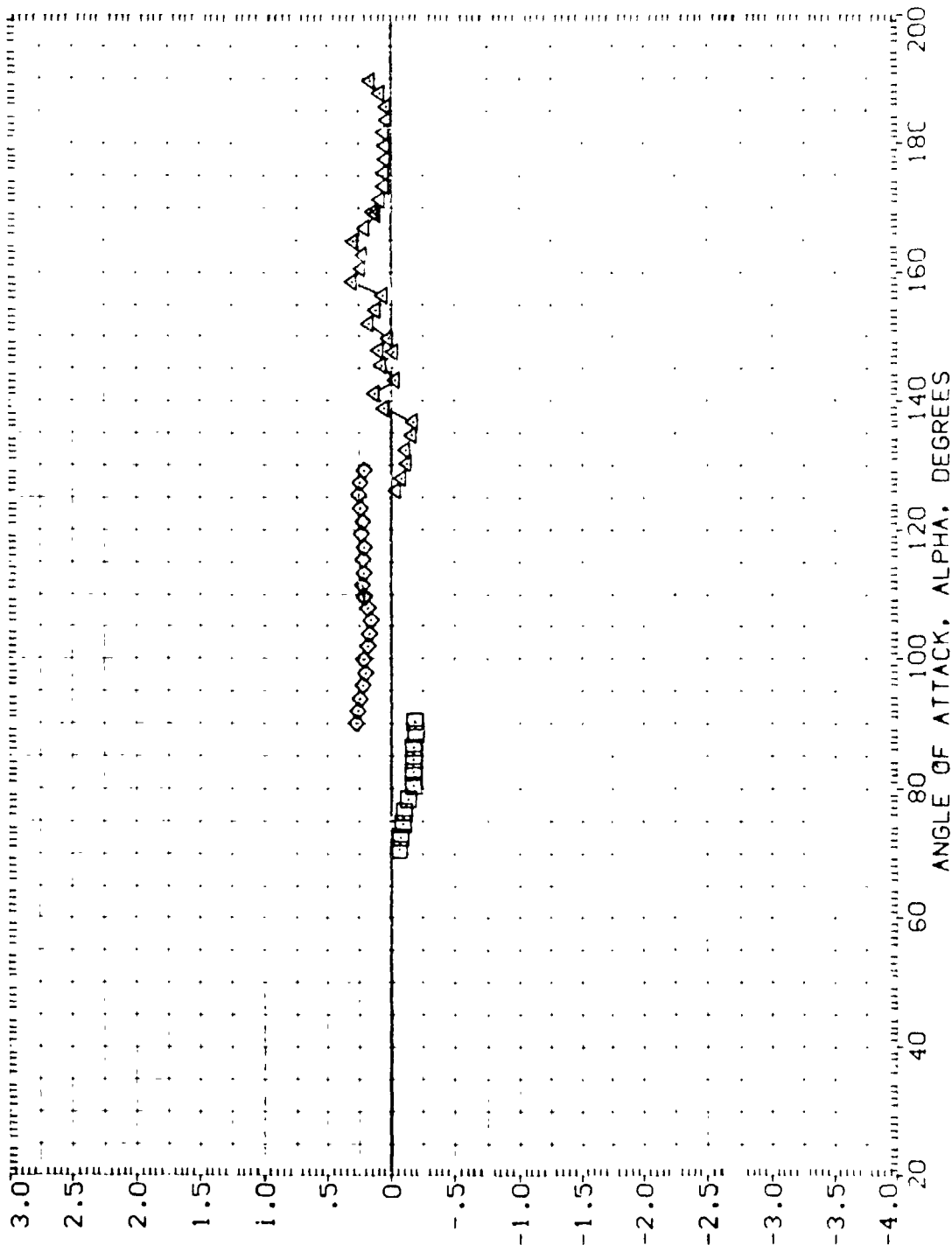


FIGURE 25. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI    REFERENCE INFORMATION

(A1H008)    DATA NOT AVAILABLE    270.000    SREF    .5030    SQ. IN.

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    LREF    8.000    IN.

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    XREF    .8000    IN.

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    XMRP    5.7210    IN. XS

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    YMRP    .0000    IN. YS

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    ZMRP    .0000    IN. ZS

(A1H008)    MSFC IV\*604 (SABF) SRB WITH ALL PROTUBERANCES    270.000    SCALE    .0055

YAWING MOMENT COEFFICIENT, C<sub>ym</sub> (MISSILE AXIS SYSTEM)

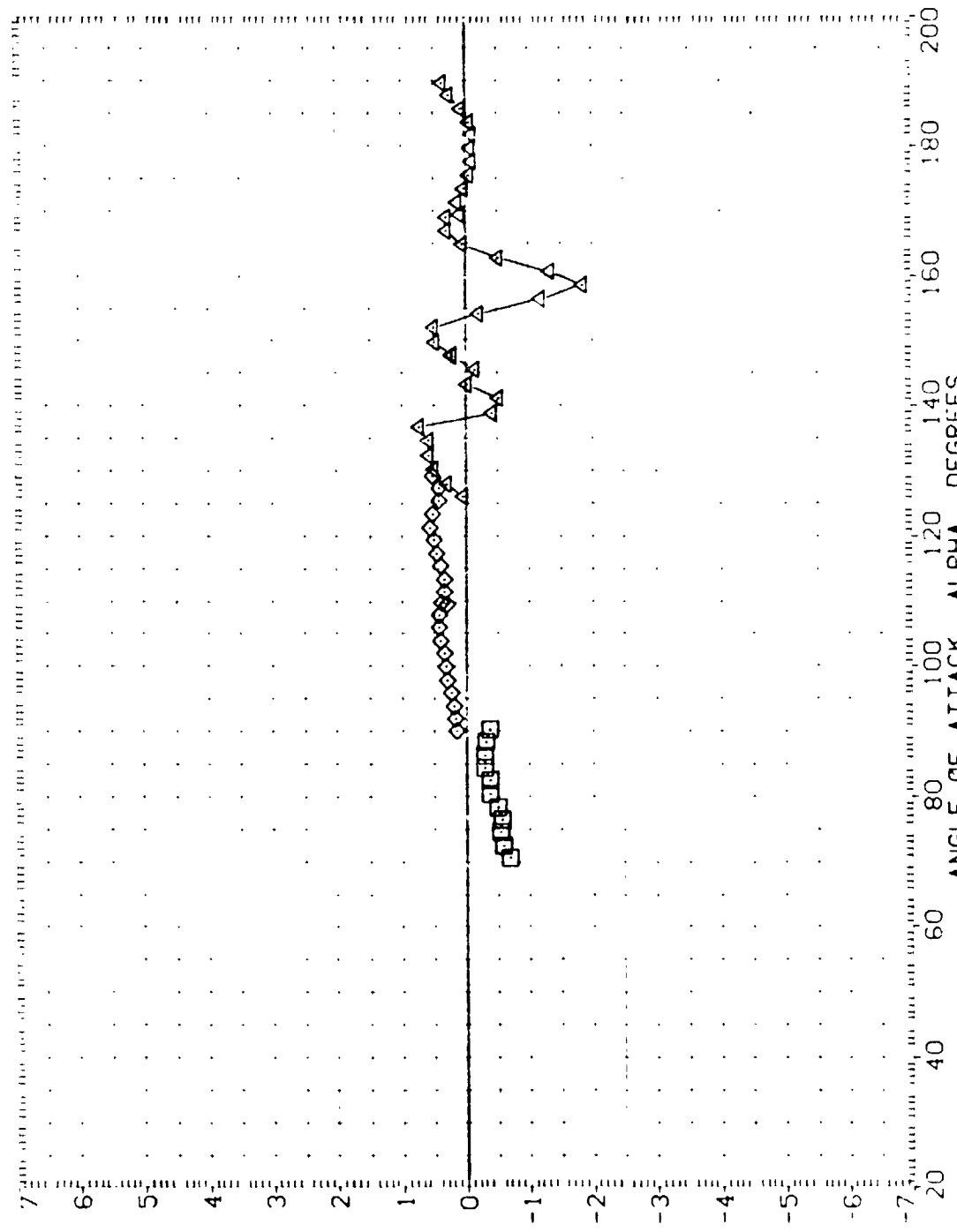


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SREF
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	ZMRP
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SCALE
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XS
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YS
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	ZS
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	COSS

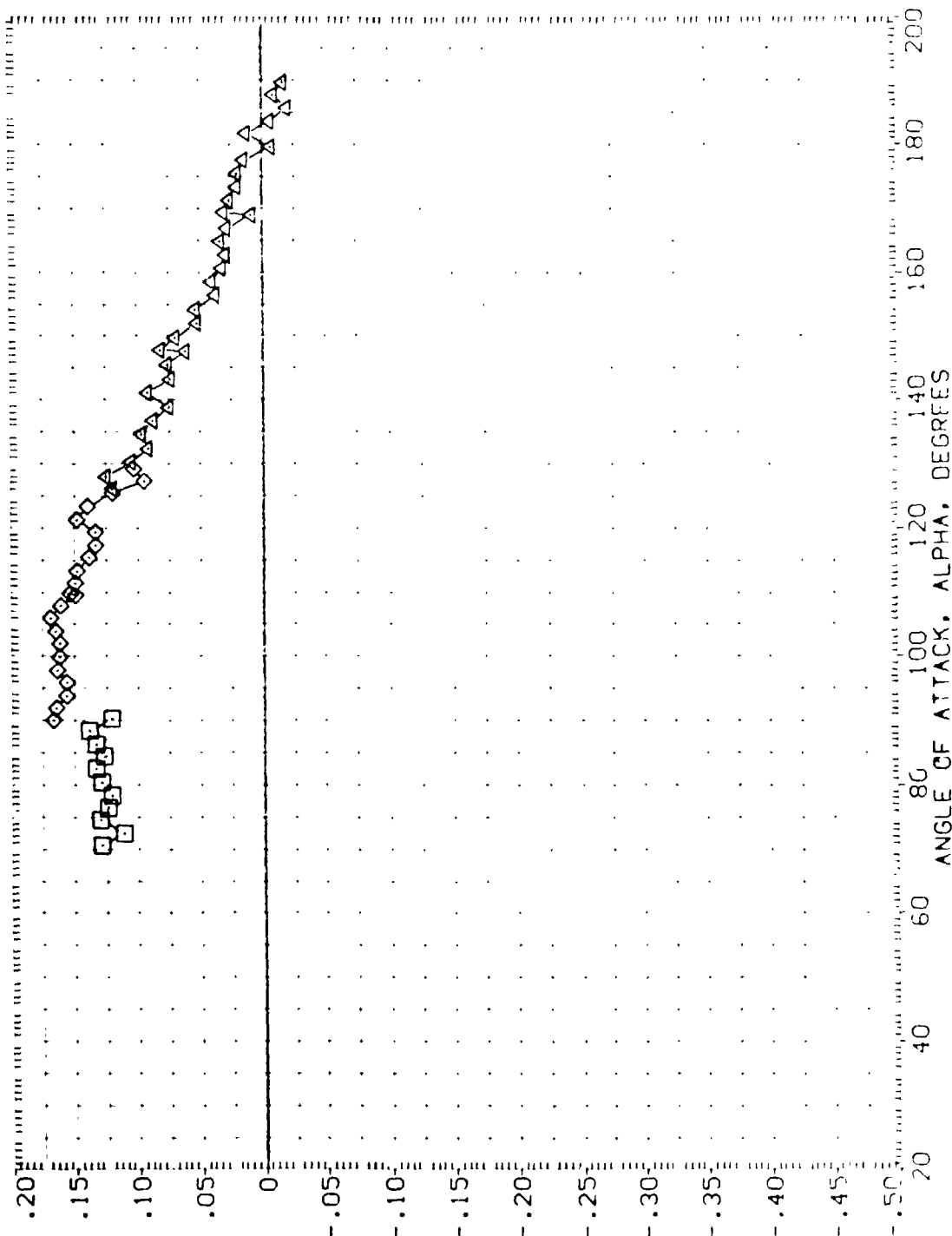


FIGURE 25. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 270)

(0)MACH = 1.20

DATA SET 51489L  
 (A1H008) DATA NOT AVAILABLE  
 (A1H066) MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H068) MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES  
 (A1H008) MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
 270.000  
 270.000  
 270.000

REFERENCE INFORMATION  
 SREF 50.30 IN.  
 LREF 5.000 IN.  
 BREF 4.700 IN.  
 XMRP 5.7110 IN.  
 YMRP .00000 IN.  
 ZMRP .00000 IN.  
 SCALE .0055

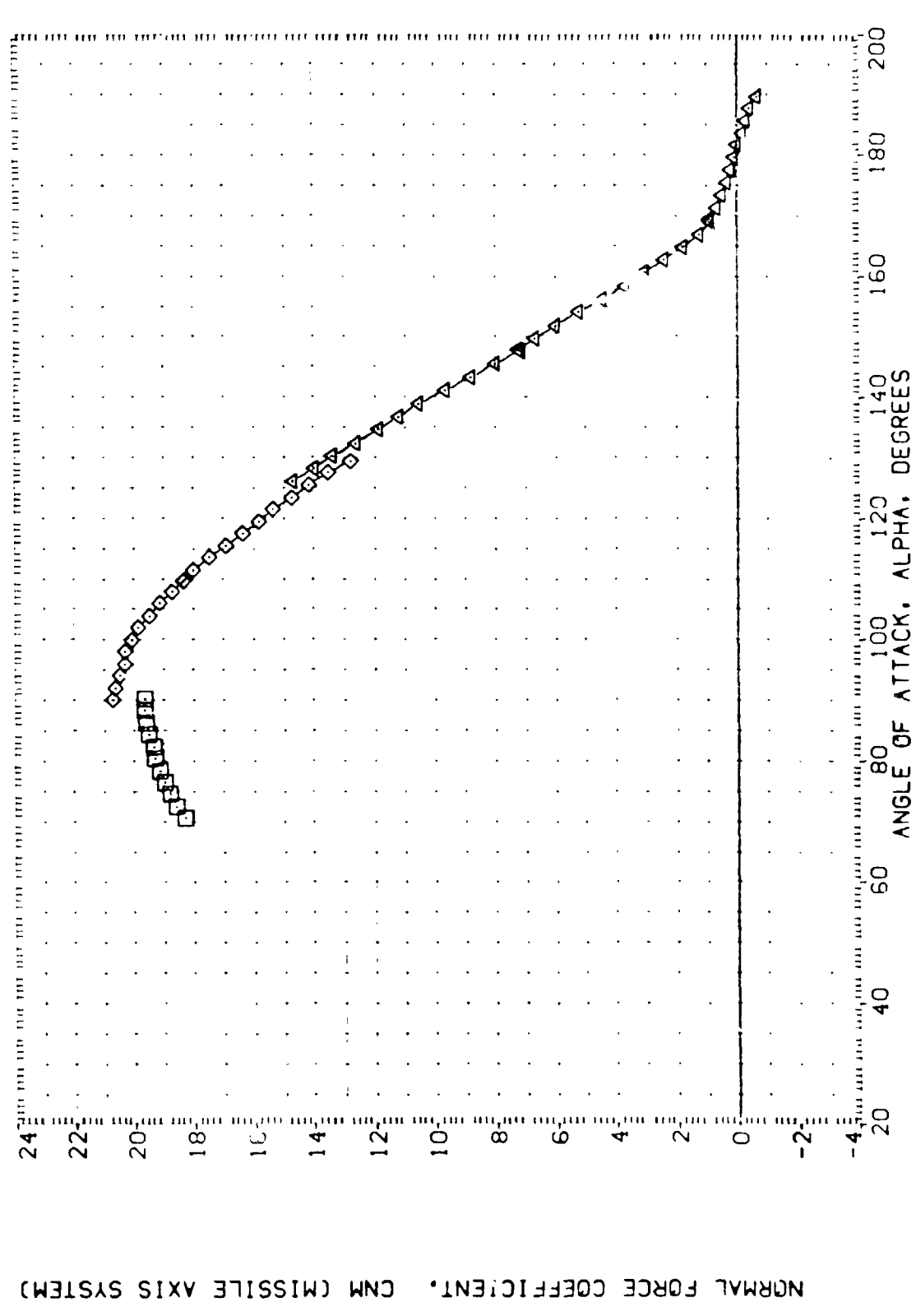


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE	FORMAT
(A1H008)	DATA NOT AVAILABLE	270.000	SREF	50 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF	5000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF	5000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XREF	5.7210 IN.
			YREF	5000 IN.
			ZREF	5000 IN.
			SCALE	5055

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

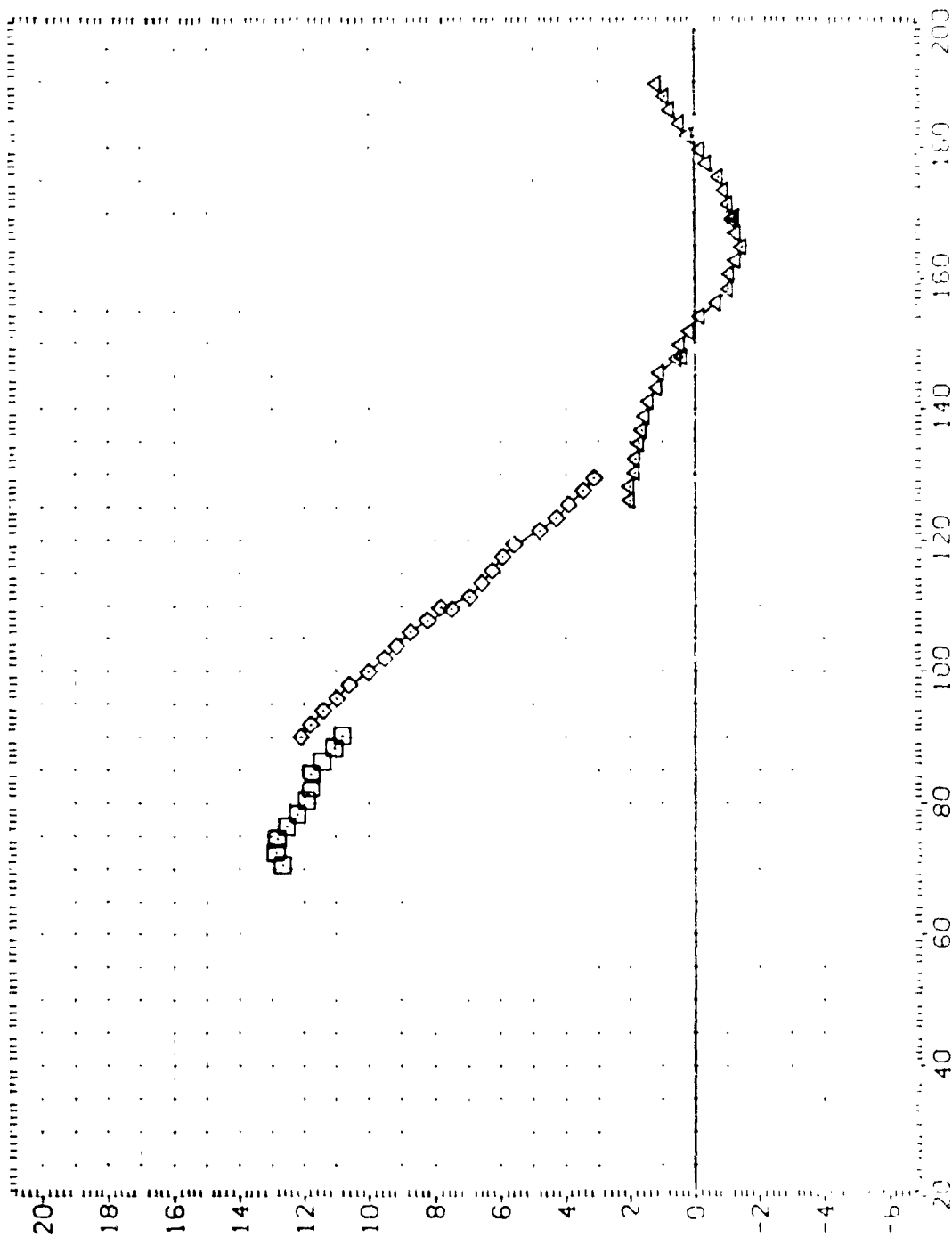


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H08)    DATA NO. 1 AVAILABLE    270.000

(A1H06)    MSCC TV1504 (SAB) SRB WITH ALL PROTUBERANCES    270.000

(A1H08)    MSCC TV1504 (SAB) SRB WITH ALL PROTUBERANCES    270.000

(A1H08)    MSCC TV1504 (SAB) SRB WITH ALL PROTUBERANCES    270.000

REFERENCE INFORMATION

SREF    5030    SQ. IN.

LREF    8100    IN.

DRREF    8100    IN.

XMRP    5.7110    IN. XS

YMRP    0.0100    IN. YS

ZMRP    0.0100    IN. ZS

SCALE    0.055

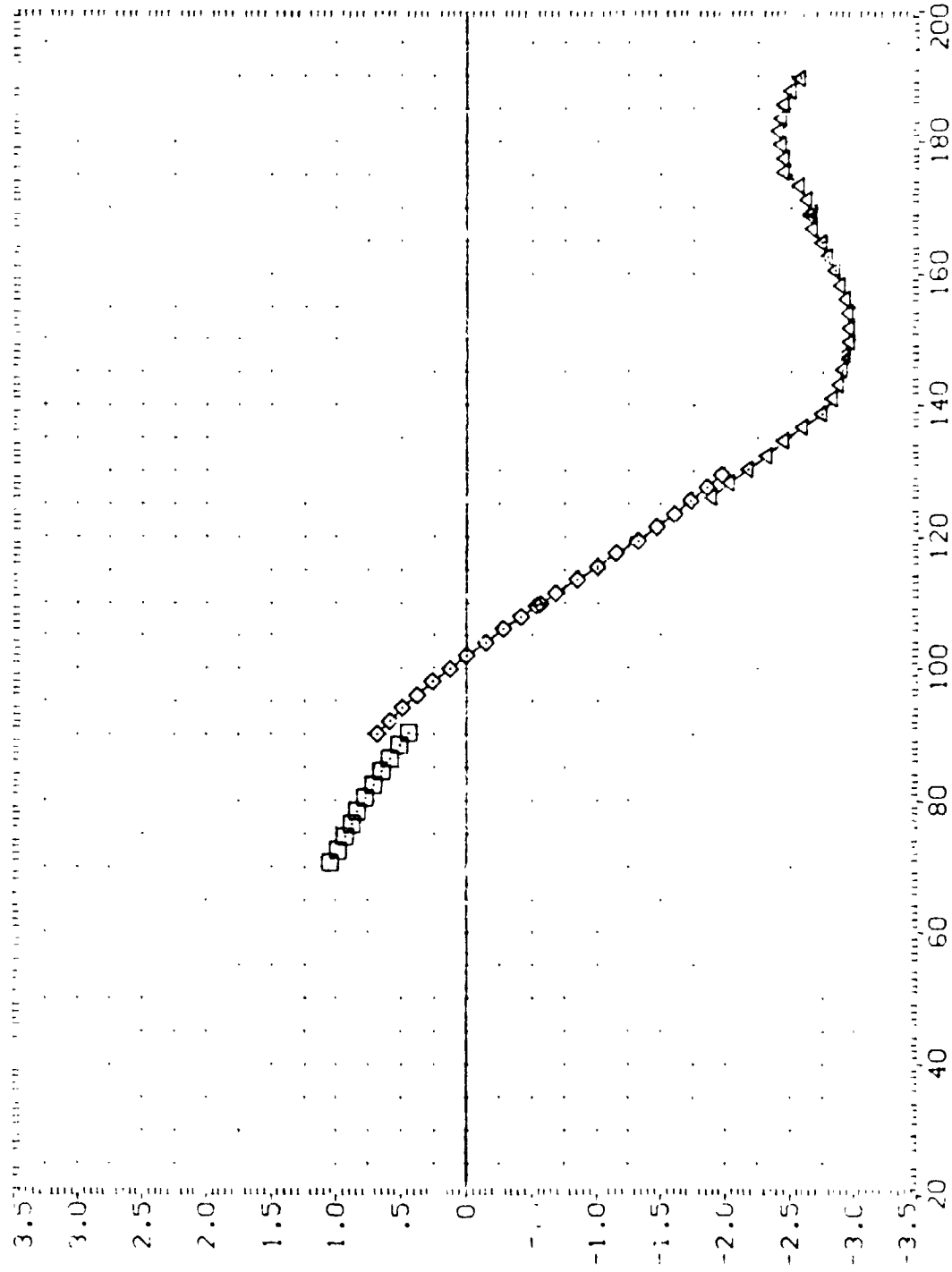


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(MACH = 1.96)



11-11-66

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIR)08)	DATA NOT AVAILABLE	270.000	SREF .503C 50. IN.
(AIR)066)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .800C IN.
(AIR)08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .800C IN.
(AIR)08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.721C IN.
			YMRP .000C IN.
			ZMRP .000C IN.
			SCALE .0055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

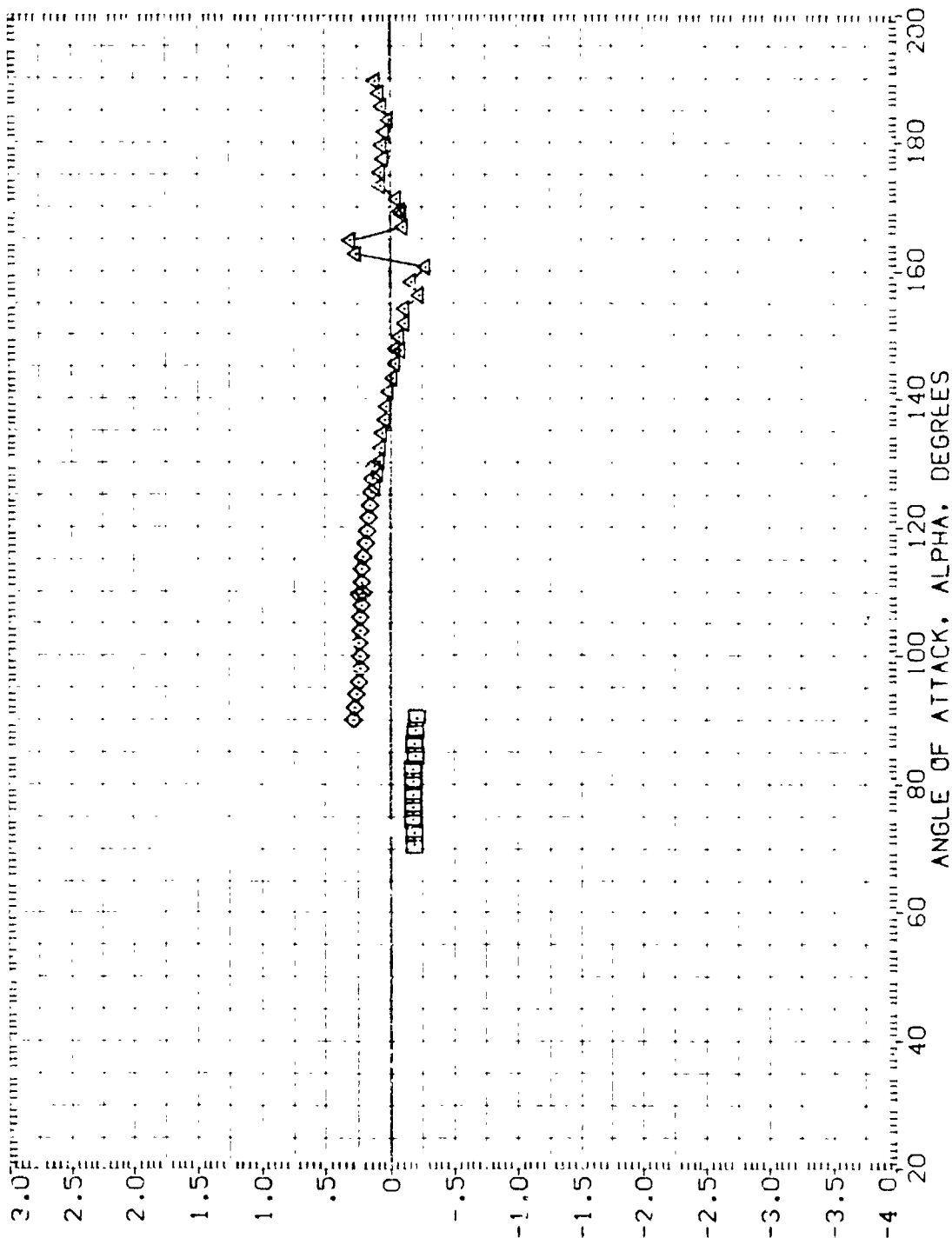


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(E)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	DATA NOT AVAILABLE	270.000	SREF .5030 SQ. IN.
(A1H006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BRF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055 IN.

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

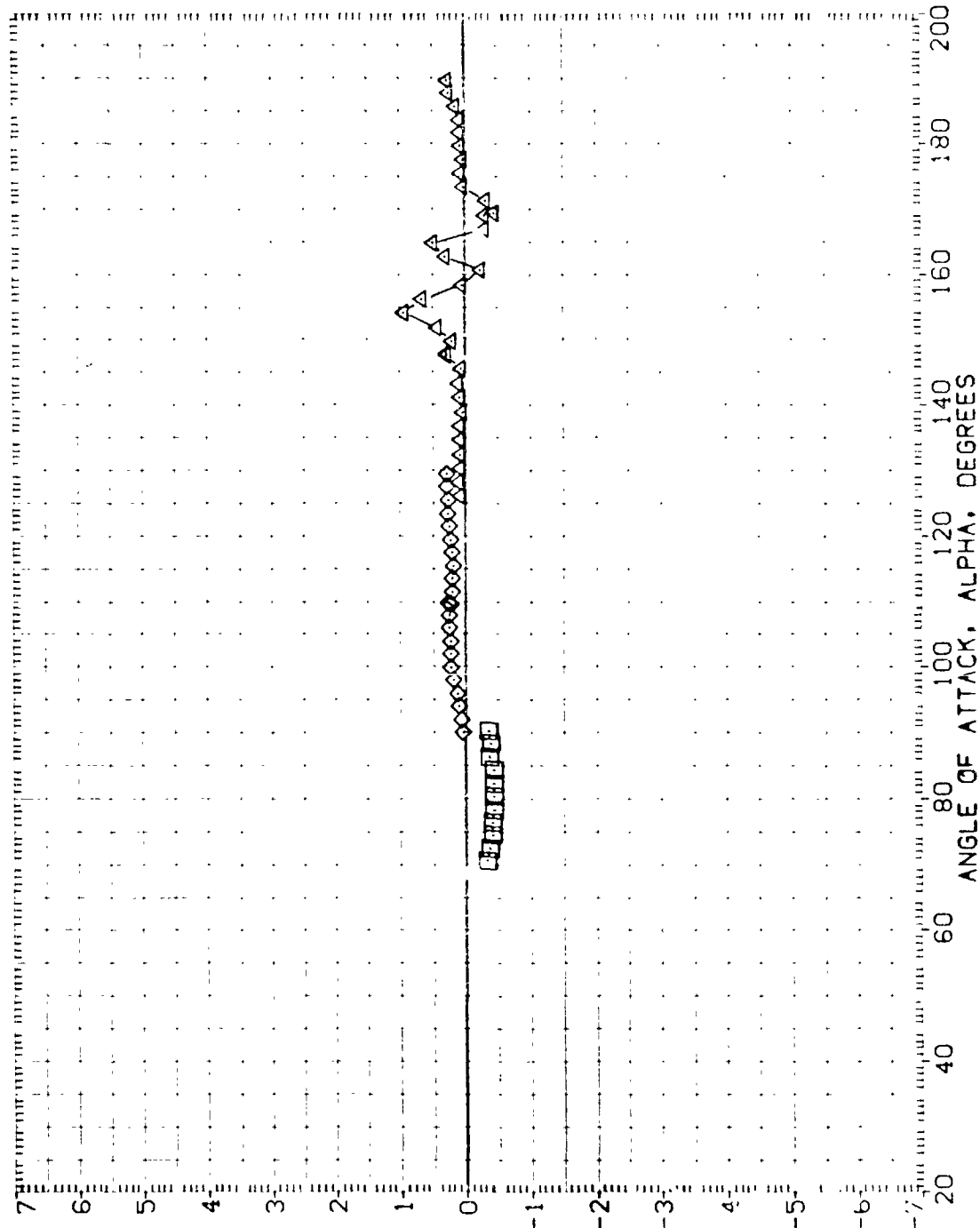


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(C)MACH = 1.95

11-11-68  
 11-11-68  
 11-11-68

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H08)	DATA NOT AVAILABLE	270.000	SREF .5000 SQ IN.
(A1H06)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .6000 IN.
(A1H08)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8000 IN.
(A1H08)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	VREF 5.7210 IN. XS
(A1H08)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	THRP .0000 IN. YS
(A1H08)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	ZHRP .0000 IN. ZS
(A1H08)	MSFC T11604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SCALE .0055

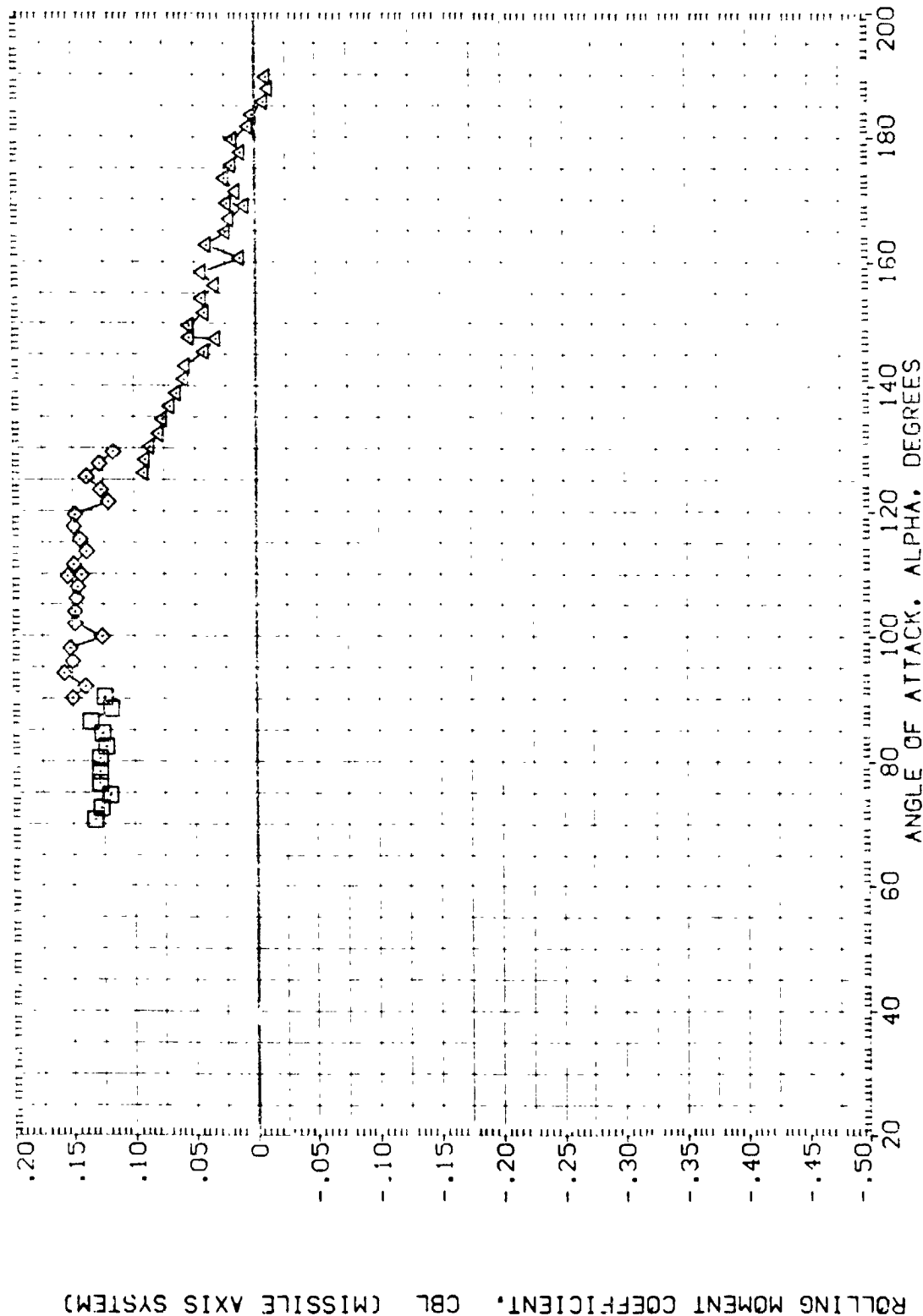


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(MACH = 1.06)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SRF .5030 SQ. IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LRLF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	GRF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

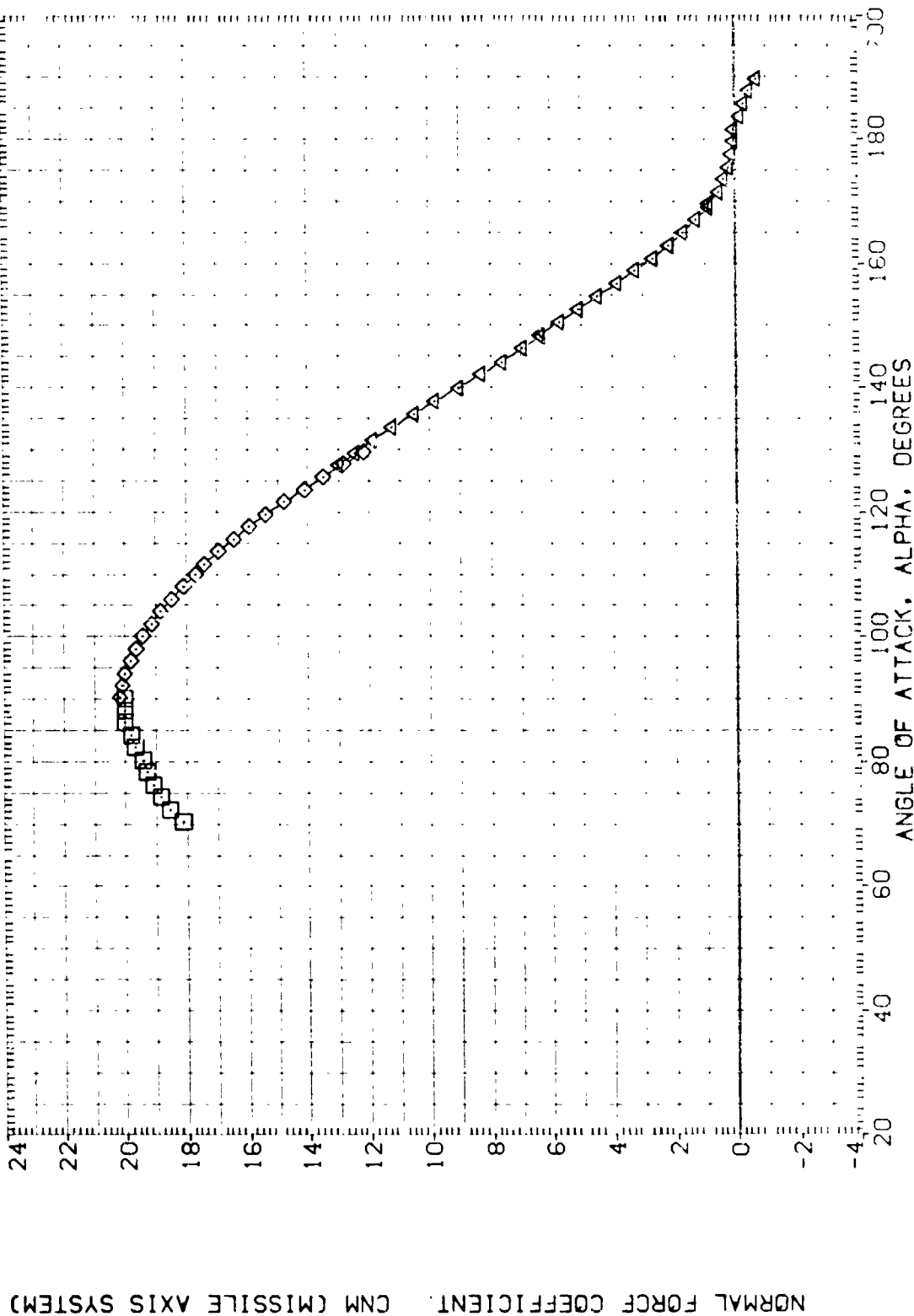


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SREF 50.00 IN.
(A1H006)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF 80.00 IN.
(A1H008)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF 80.00 IN.
(A1H008)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	VMRP 5.7210 IN. XS
			VMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

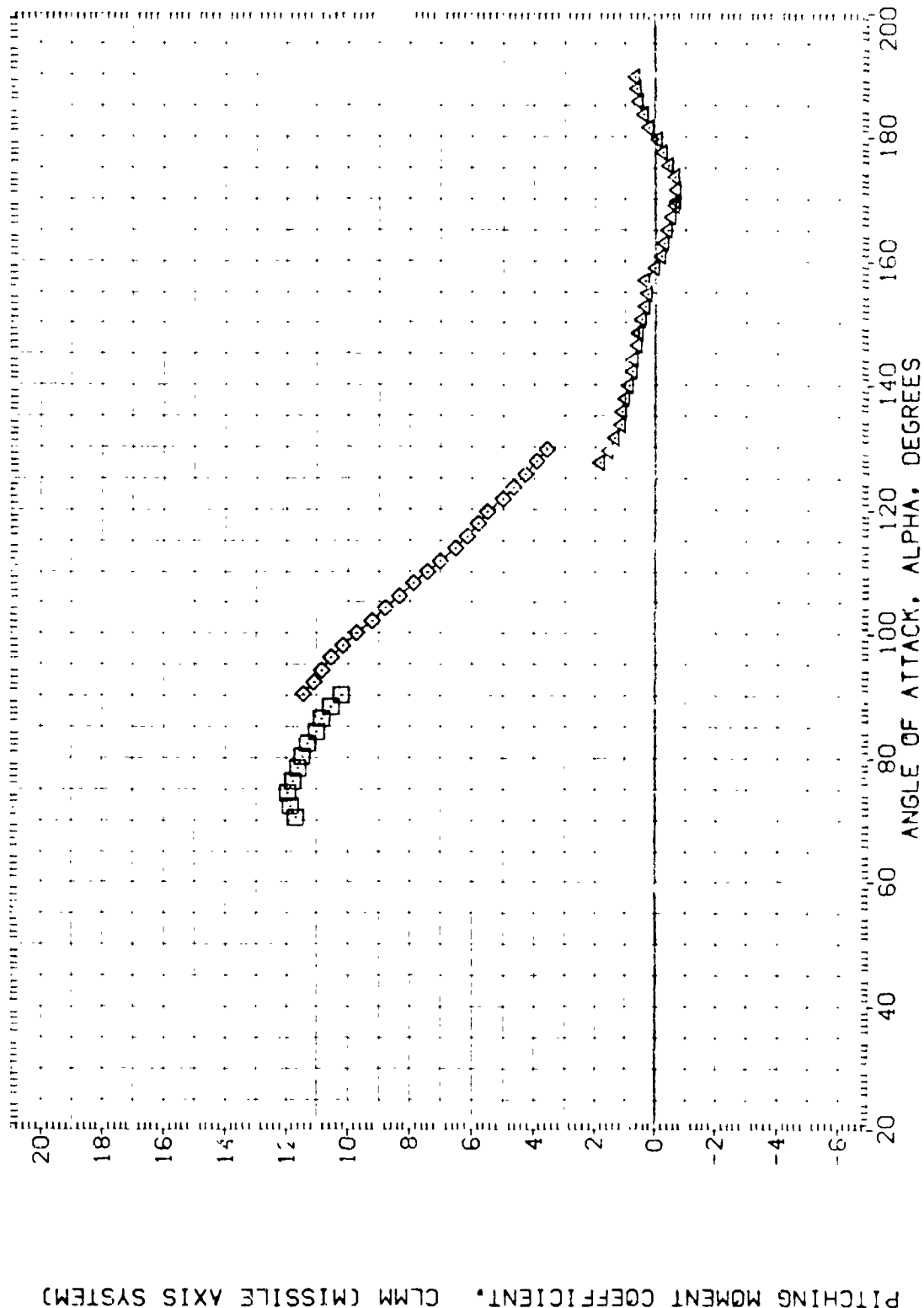


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(F)MACH = 2.74

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H08)	□	DATA NOT AVAILABLE	SRB WITH ALL PROTUBERANCES	270.000		SREF	50.00
(A1H066)	□	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES	270.000		LREF	80.00
(A1H08)	□	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES	270.000		BREF	80.00
(A1H08)	□	MSFC TVT604 (SA8F)	SRB WITH ALL PROTUBERANCES	270.000		YMRP	5.7210
						ZMRP	1.0000
						SCALE	1.0000

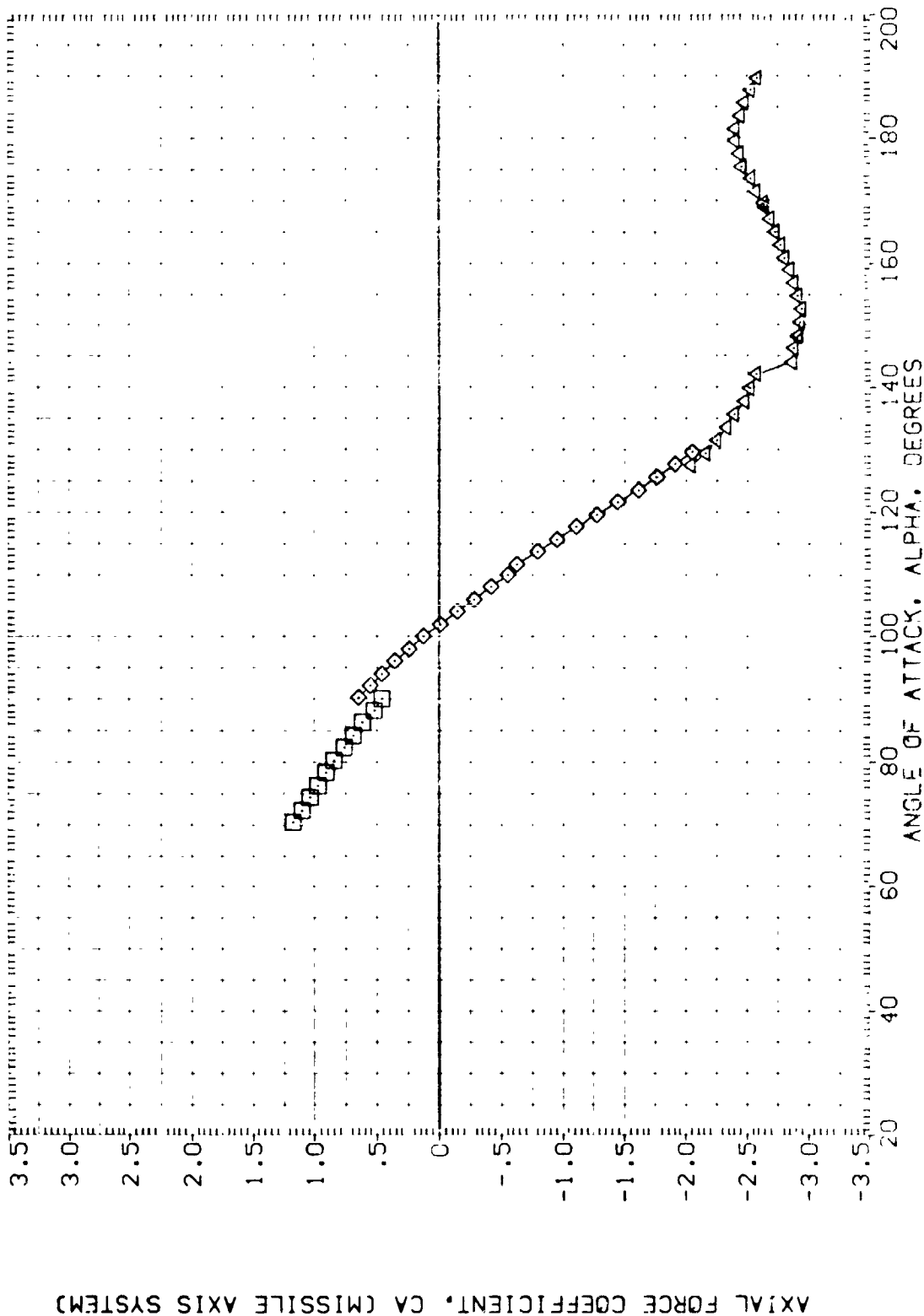


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(F)MACH = 2.74

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H008)      DATA NOT AVAILABLE      270.000

(A1H066)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

(A1H008)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      270.000

REFERENCE INFORMATION

SREF      50.30      IN.

LREF      80.00      IN.

BRLP      5.721C      IN.

YMRP      .000C      IN.

ZMRP      .000C      IN.

SCALE      .0055

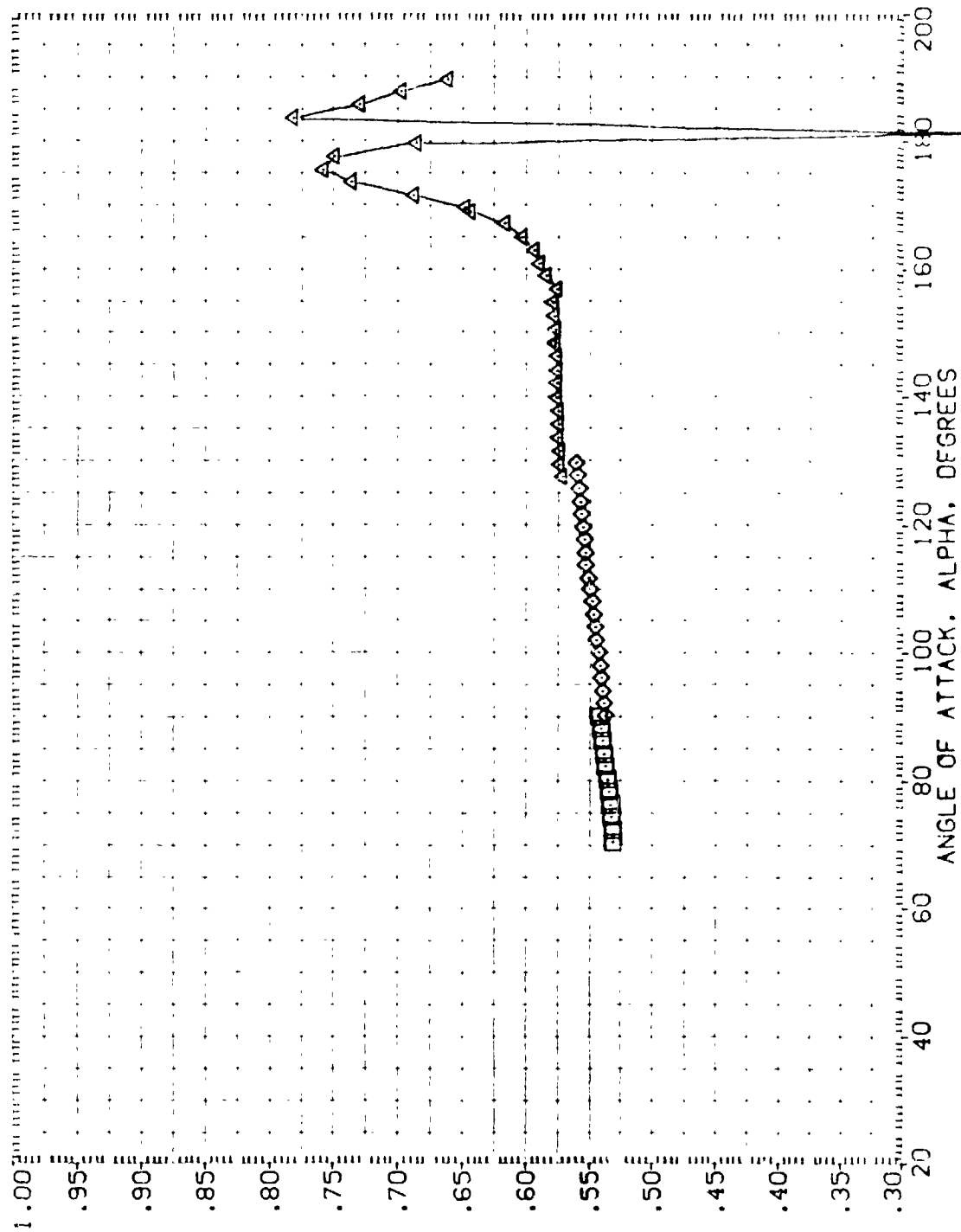


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(F)MACH = 2.74

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H008)	DATA NOT AVAILABLE	270.000	SREF 5030 SQ. IN.
(A1H056)	MSFC TVT304 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF 8000 IN.
(A1H003)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF 8000 IN.
(A1H008)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	270.000	MRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

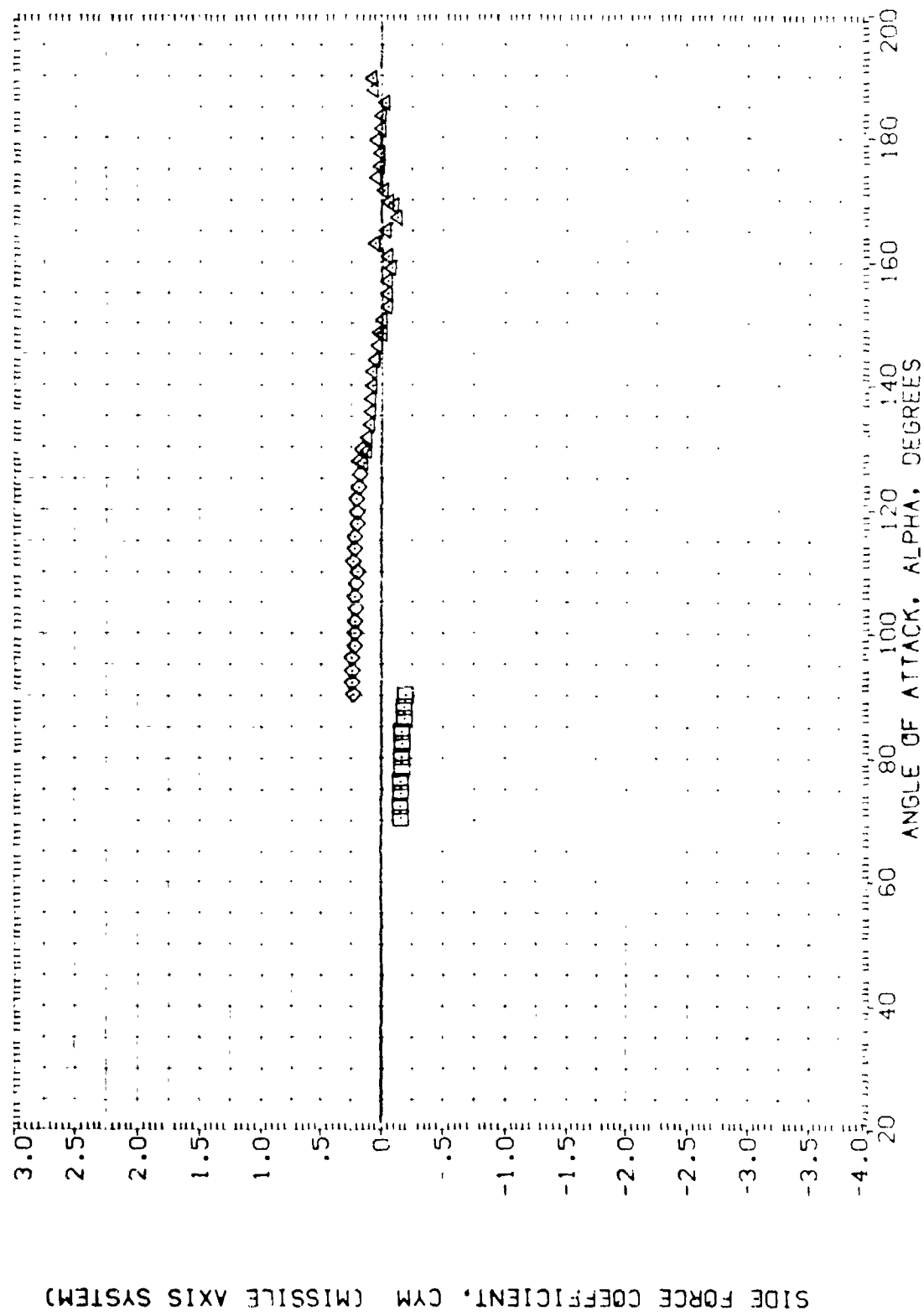


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 270)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H000)	DATA NOT AVAILABLE	270.000	SREF
(A1H005)	MSFC TWT604 (SABF)	270.000	LIREF
(A1H006)	MSFC TWT604 (SABF)	270.000	DRREF
(A1H008)	MSFC TWT604 (SABF)	270.000	XRRP
(A1H009)	MSFC TWT604 (SABF)	270.000	YRRP
			ZRRP
			SCALE
			XS
			YS
			ZS
			.0030
			.8000
			.8000
			5.7210
			.0000
			.0000
			.0055

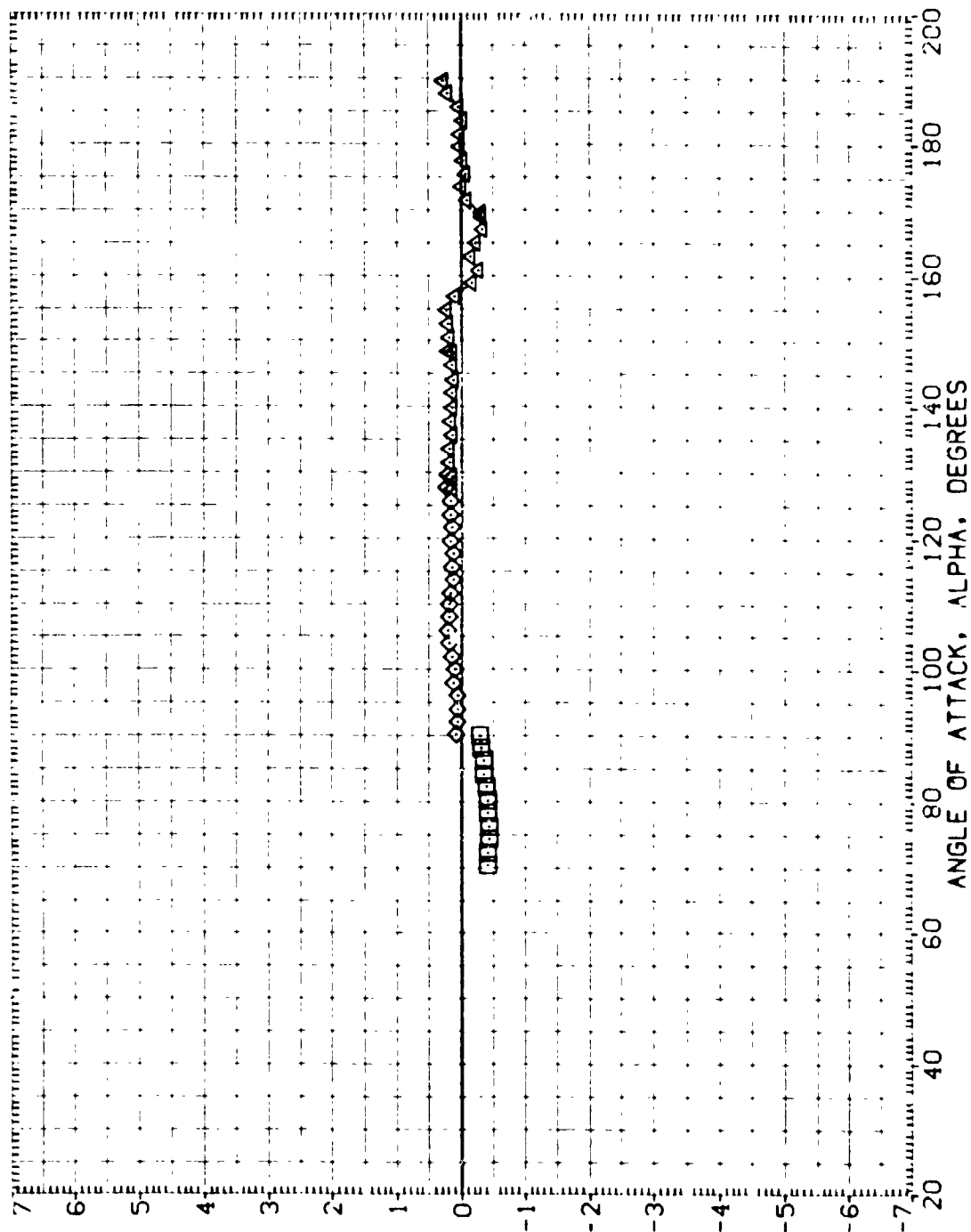


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\text{PHI} = 270^\circ$ )

$$(F)_{MACH} = 2.74$$

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI		REFERENCE INFORMATION	
(A1H008)	DATA NOT AVAILABLE	SRB WITH ALL	PROTUBERANCES	270.000		SREF	.5030 IN.
(A1H066)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	270.000		LRLF	.8000 IN.
(A1H008)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	270.000		BREF	5.7210 IN.
(A1H008)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	270.000		XMRP	.0000 IN.
						YMRP	.0000 IN.
						ZMRP	.0000 IN.
						SCALE	.0055

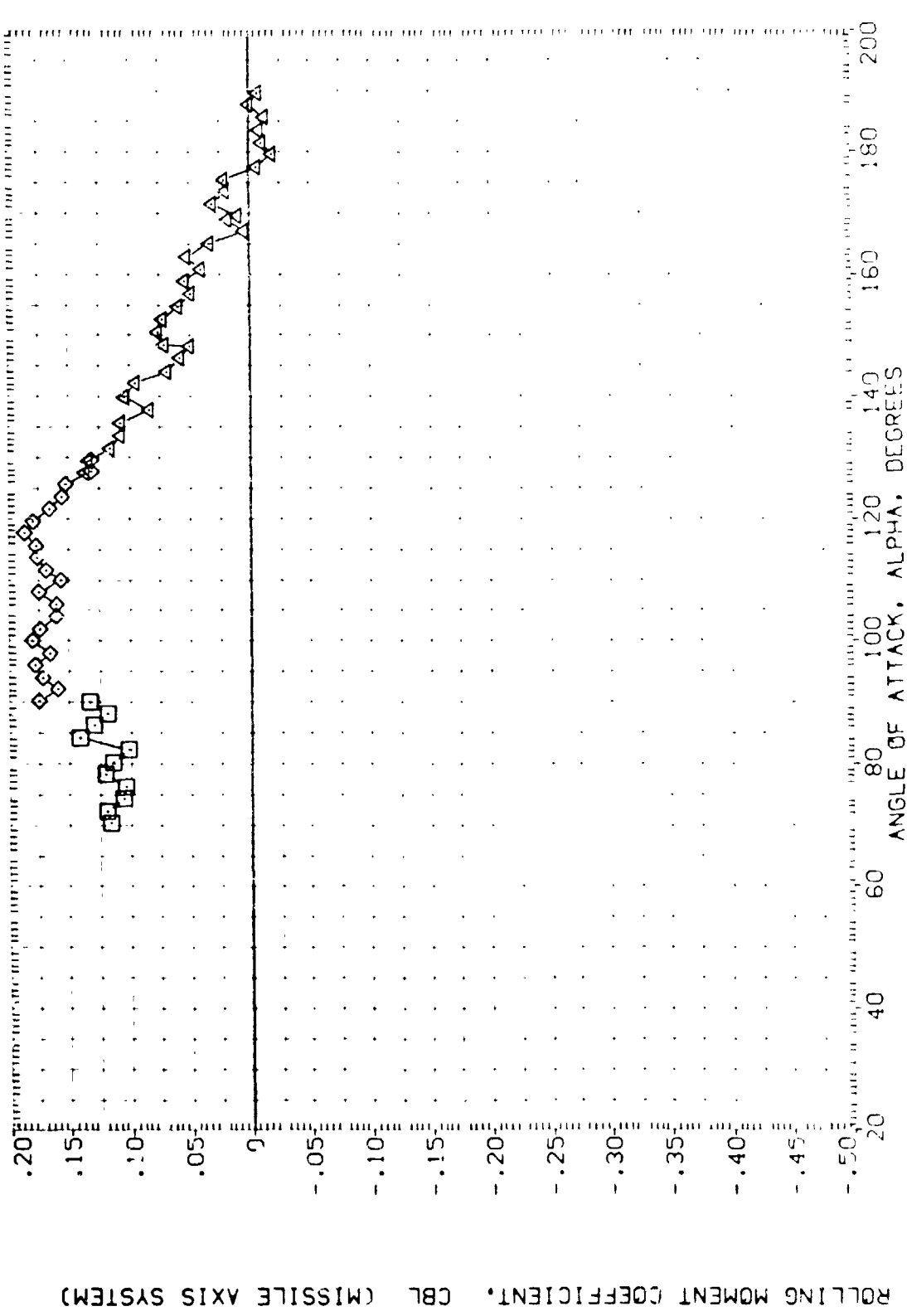


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(F)MACH = 2.74

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
[A1H008]	MSFC TV-1504 (SAB) SRB WITH ALL PROTUBERANCES	270.000	SREF .00.00 SQ. IN.
[A1H066]	MSFC TV-1504 (SAB) SRB WITH ALL PROTUBERANCES	270.000	LREF .00.00 IN.
[A1H088]	MSFC TV-1504 (SAB) SRB WITH ALL PROTUBERANCES	270.000	BREF .00.00 IN.
[A1H008]	MSFC TV-1504 (SAB) SRB WITH ALL PROTUBERANCES	270.000	AMPB 5.7210 IN. XS
			AMPB .00.00 IN. YS
			ZMRP .00.00 IN. ZS
			SCALE .0055

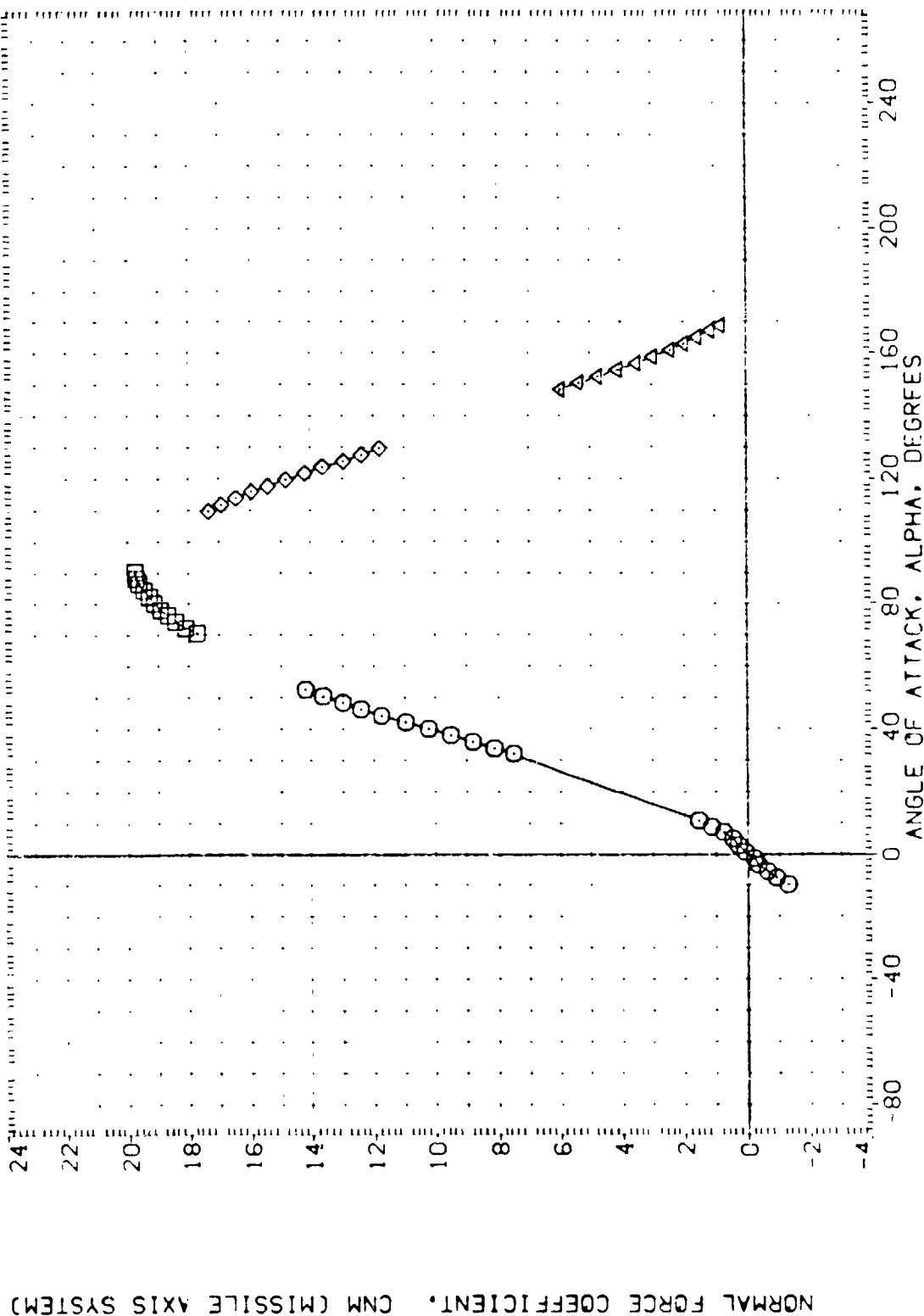


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(MACH = 3.48)



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(A)MACH	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SRF	5000	IN.
(A)H066	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LMF	8000	IN.
(A)H068	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SMF	8000	IN.
(A)H068	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP	5.7210	IN.
			ZMRP	10000	IN.
			ZMRP	10000	IN.
			SCALE	10000	IN.

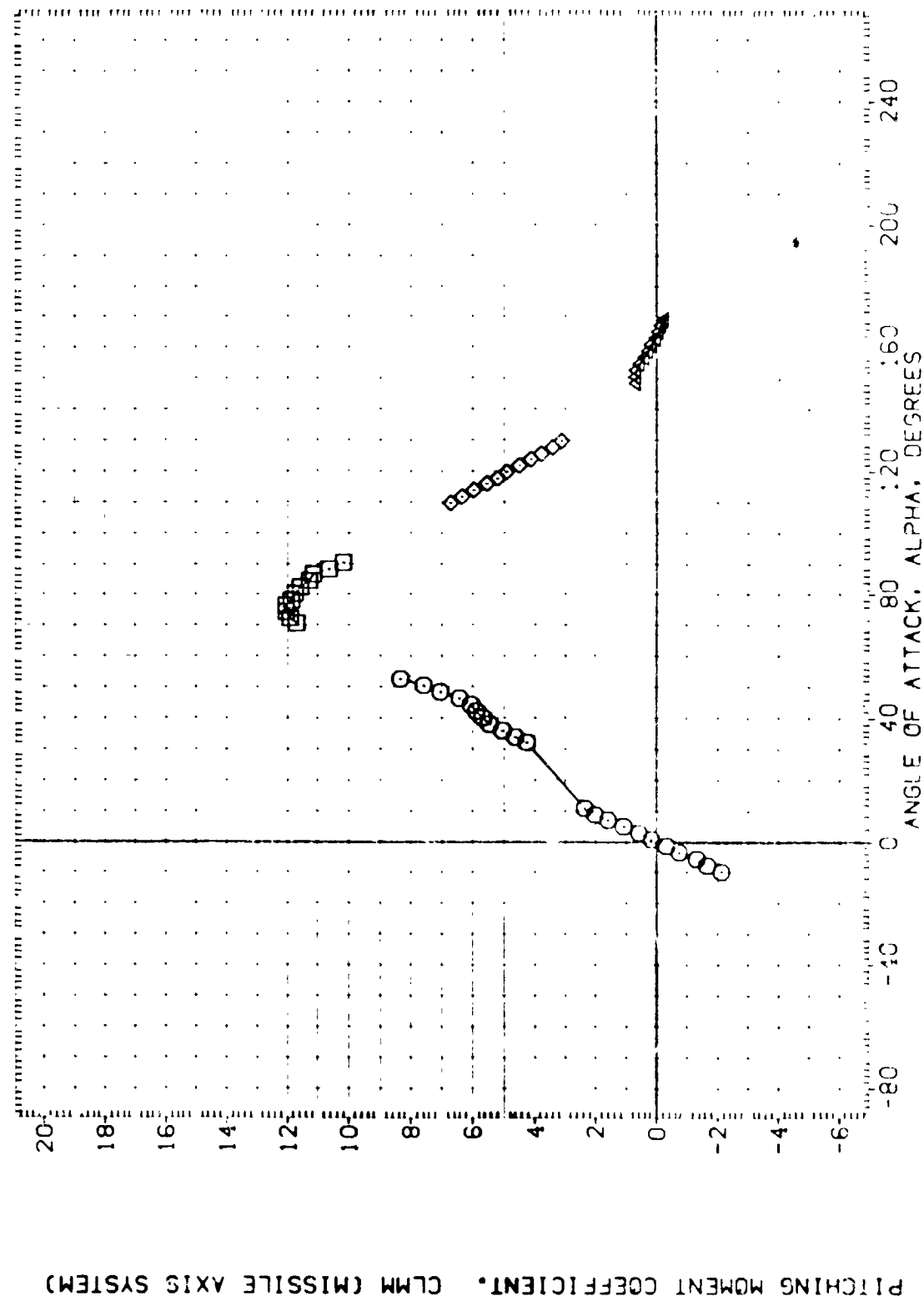


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H008	W3FC W3CA (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF .5030 IN.
(A)H009	W3FC W3CA (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A)H010	W3FC W3CA (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8000 IN.
(A)H011	W3FC W3CA (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP 5.7210 IN.
(A)H012	W3FC W3CA (SABF) SRB WITH ALL PROTUBERANCES	270.000	ZMRP .0000 IN.
			SCALE .0035

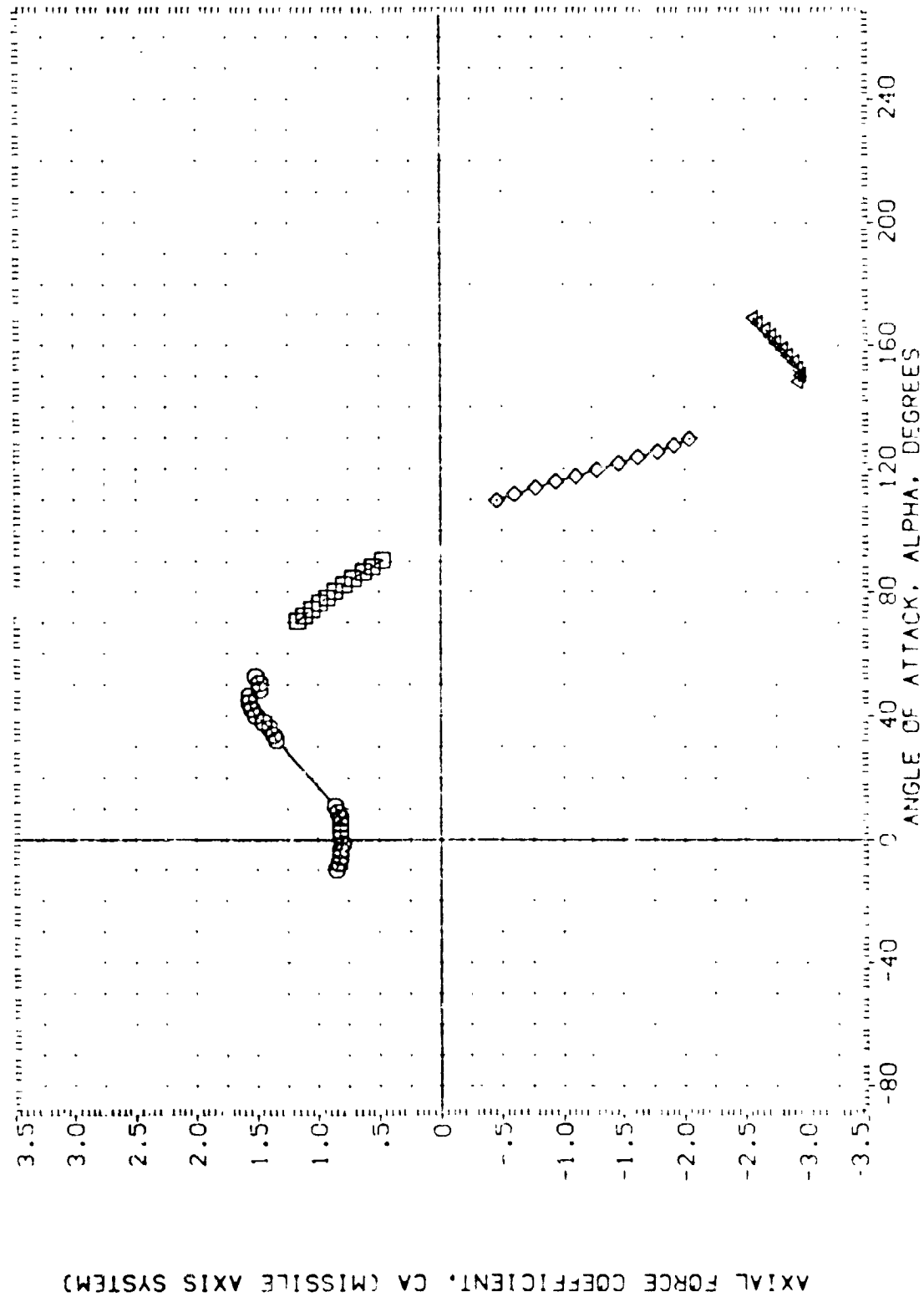


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH PROTUBERANCES (PHI = 270)

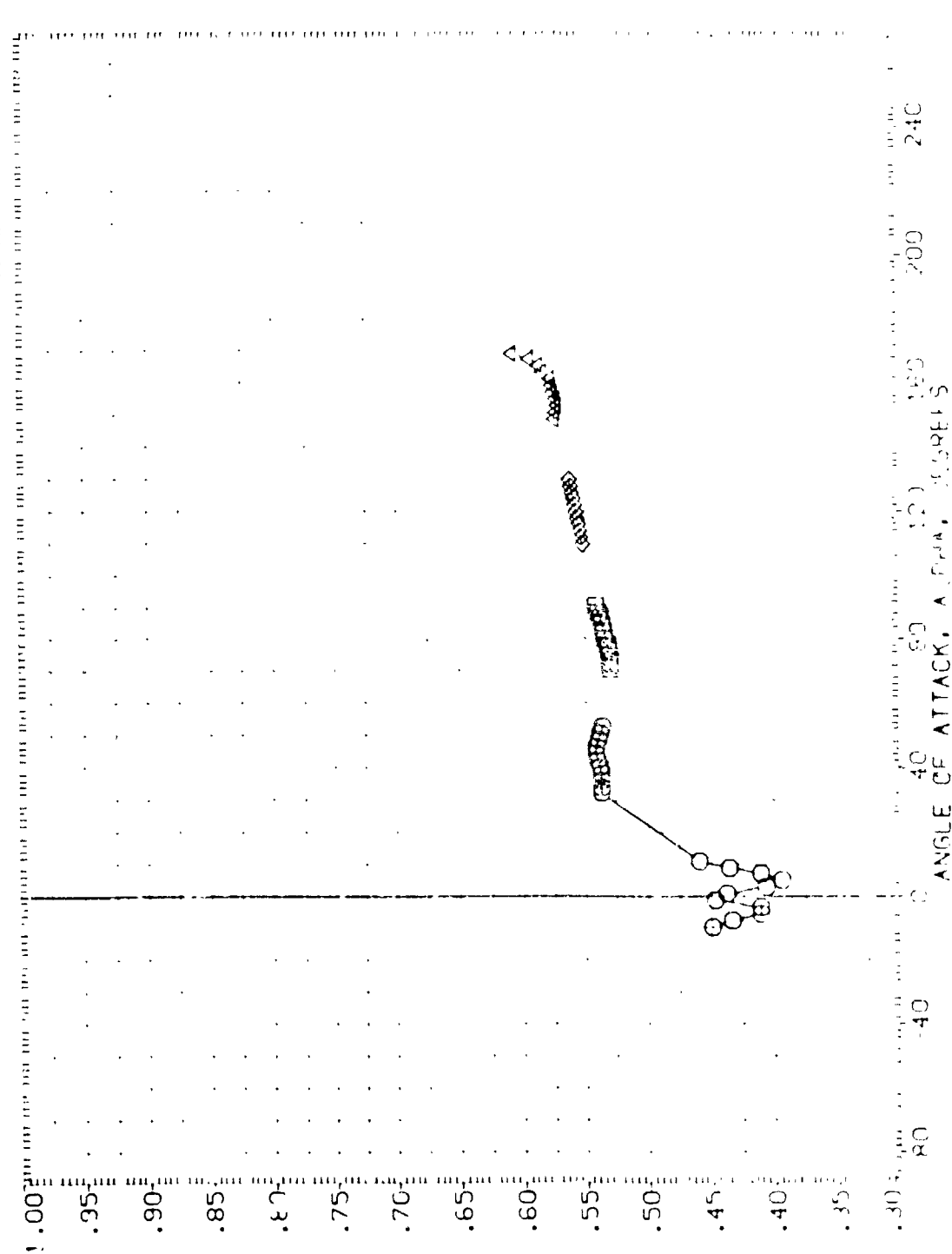
[illegible]

FIGURE 25. STATIC STABILITY CHARACTERISTICS OF 593-PAAL PRO LIGANDS ( $\text{PHI} = 170^\circ$ )

(\*)  $\mathcal{M}_A(\mathcal{H}) = 3.43$

4.5



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H008	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF 54.30 50.00
(A)H066	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF 80.00 N.
(A)H008	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF 5.7210 N.
(A)H008	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP .0000 N.
			YMRP .0000 N.
			ZMRP .0000 N.
			SCALE .0055

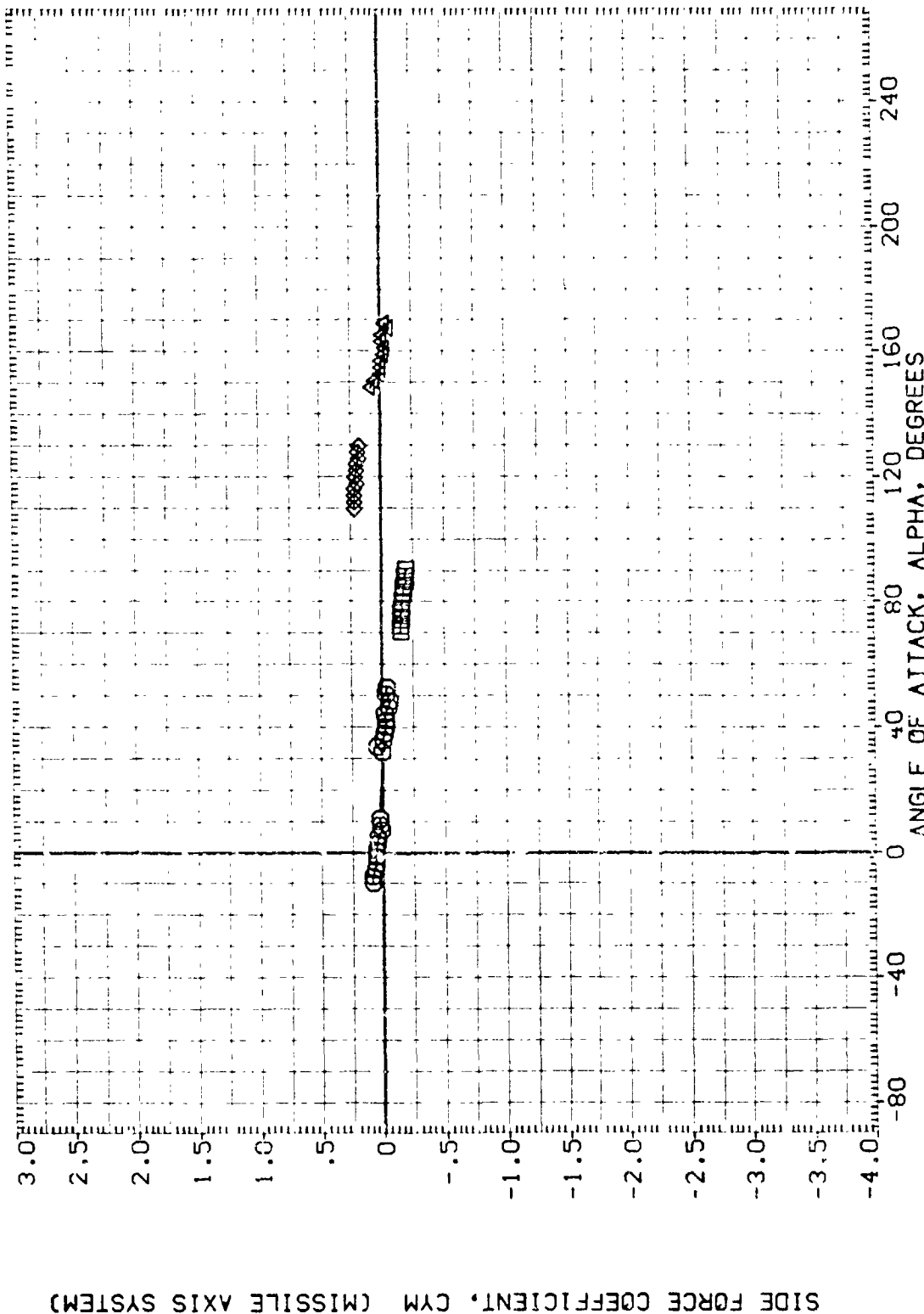


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)

(A)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	P41	REFERENCE INFORMATION
(A1H08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF .5030 IN.
(A1H06)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .8000 IN.
(A1H08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8000 IN.
(A1H08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN.
			YMRP .6000 IN.
			ZMRP .0000 IN.
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

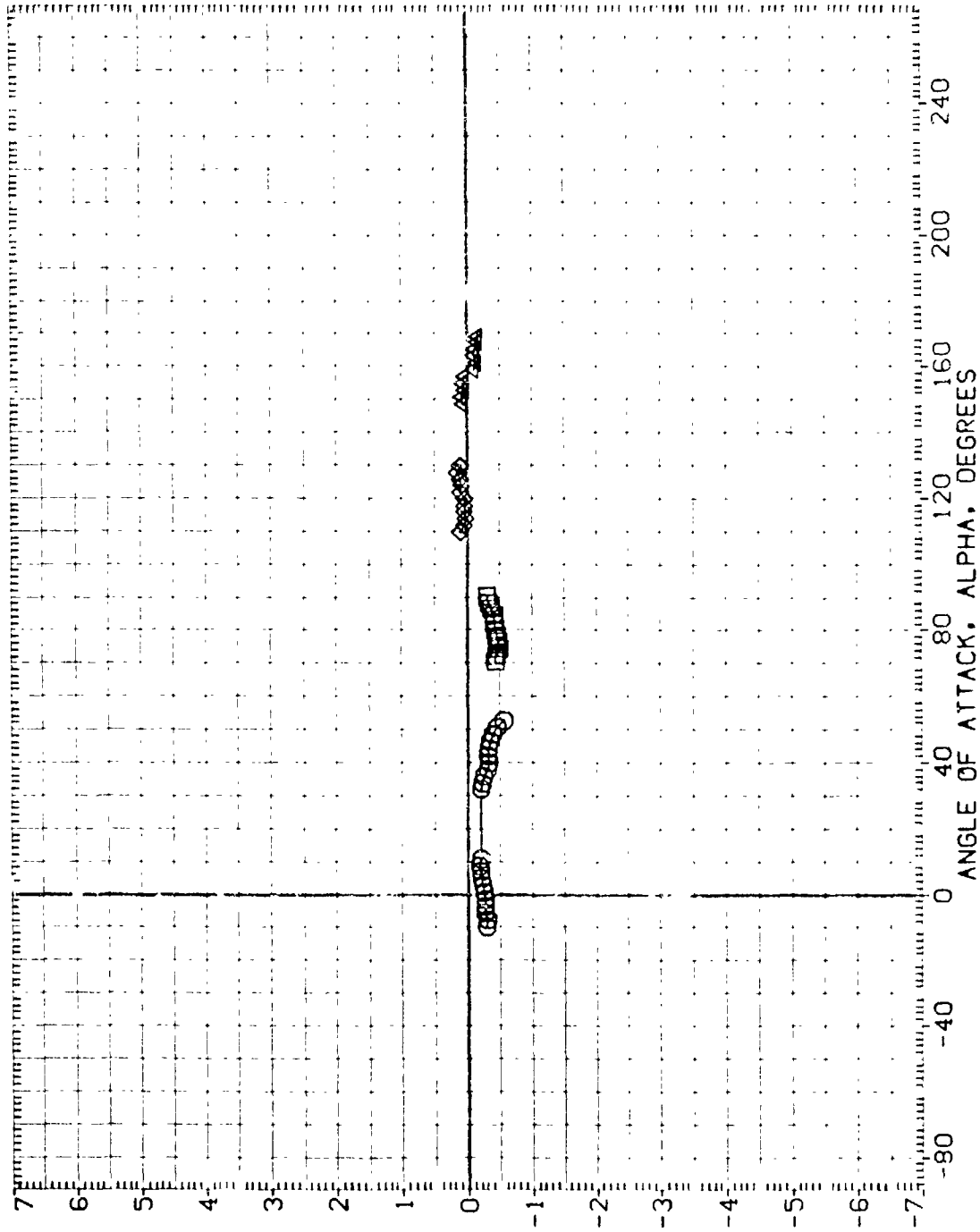


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(A) MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HA08)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF .503J 50. IN.
(A1H066)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	LREF .P000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	BREF .8000 IN.
(A1H008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

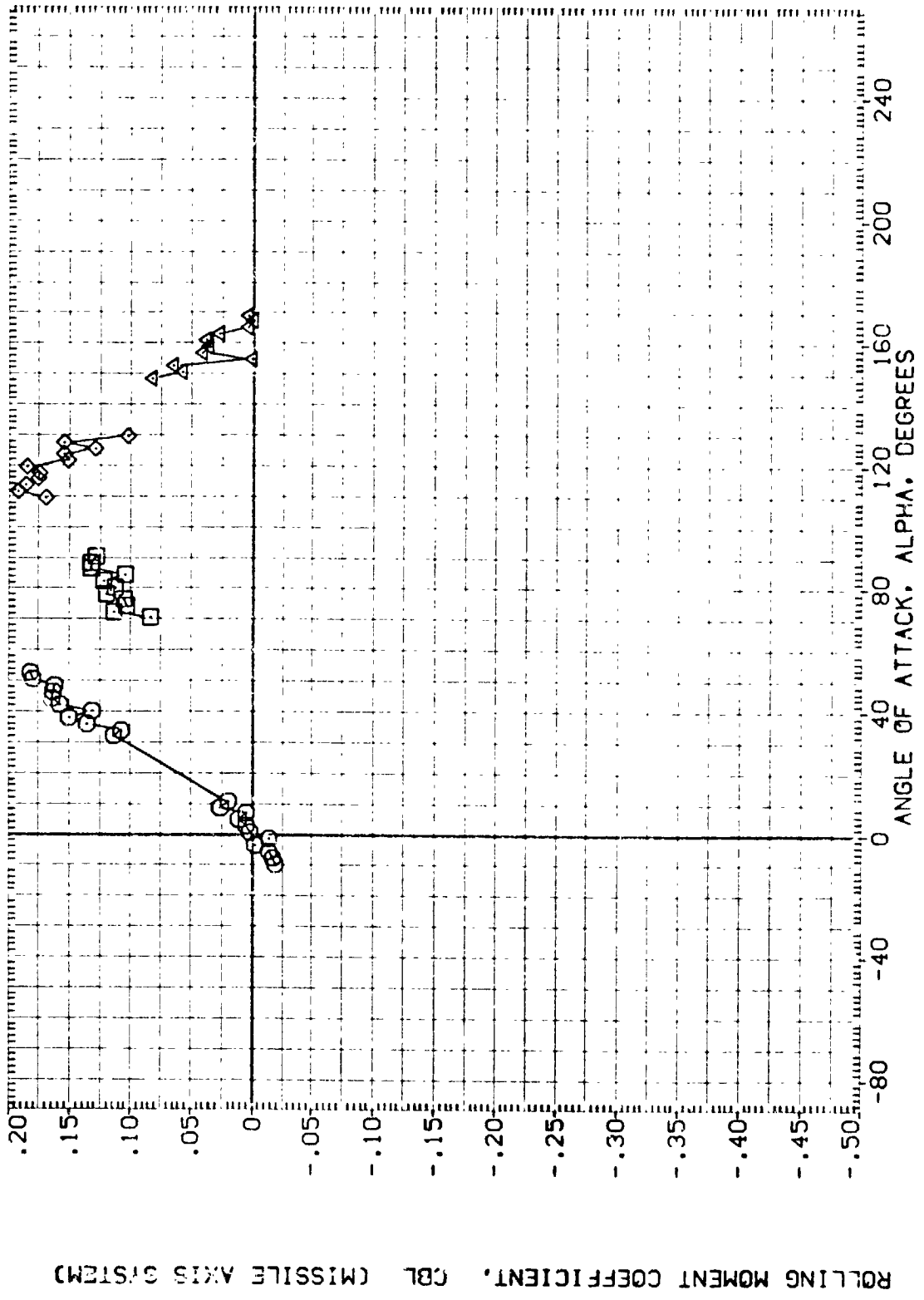


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(A) MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI
[A1H08]	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000
[A1H06]	DATA NOT AVAILABLE	270.000
[A1H08]	DATA NOT AVAILABLE	270.000
[A1H08]	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000

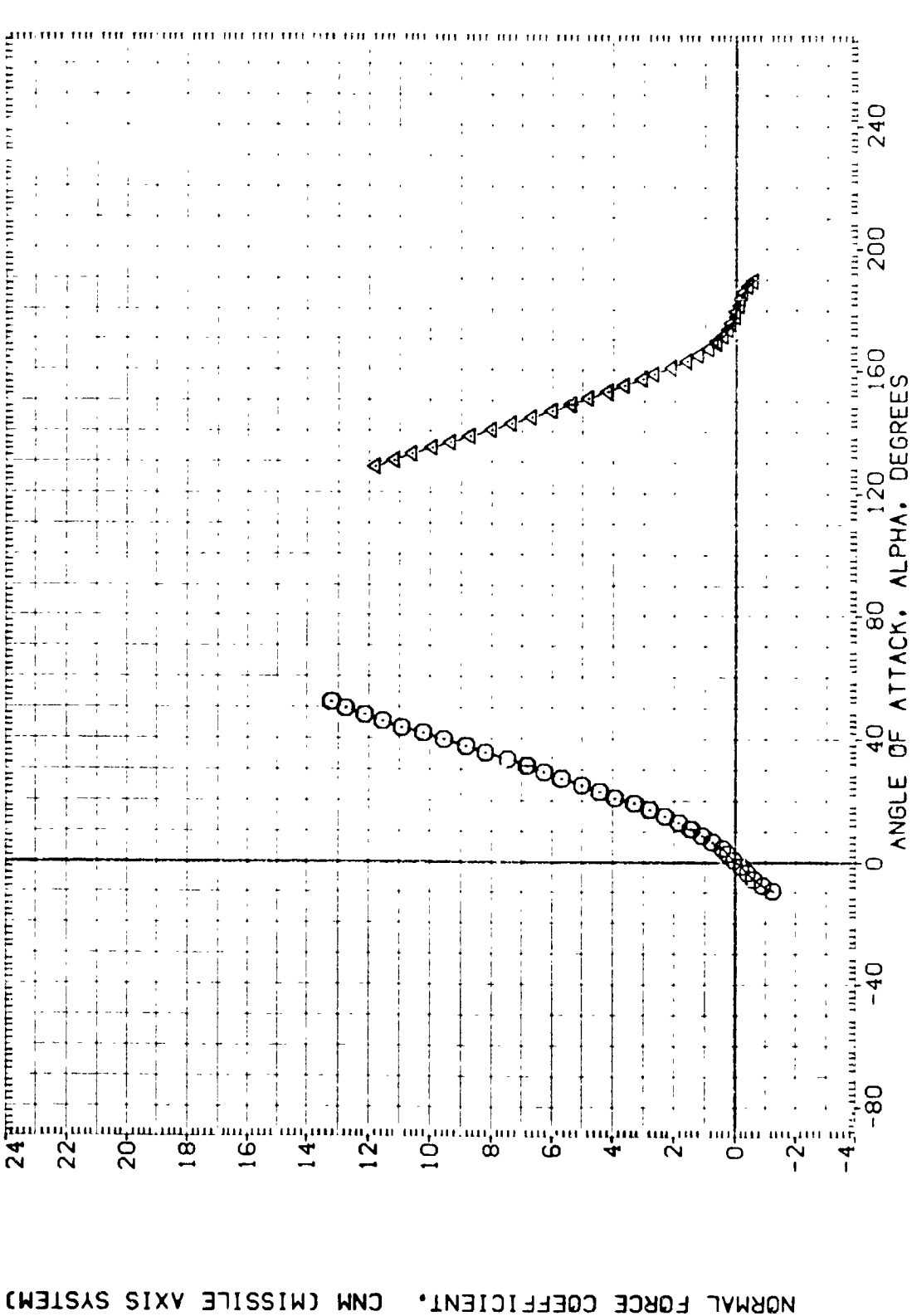


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HA08)	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF .5030 SQ. IN.
(A1H088)	DATA NOT AVAILABLE	270.000	LREF .8700 IN.
(A1H088)	DATA NOT AVAILABLE	270.000	BREF .8000 IN.
(A1H088)	MSFC TVT04 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

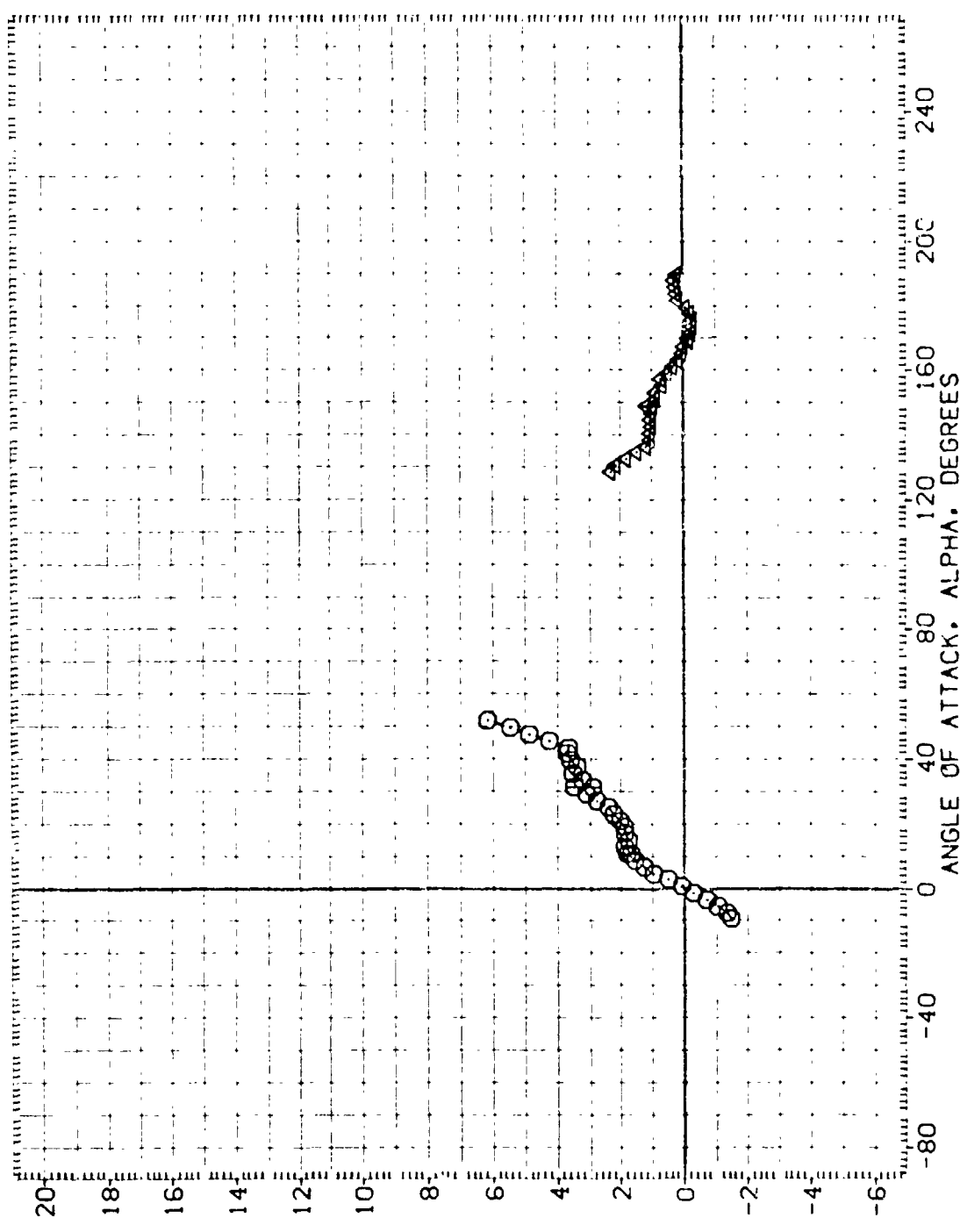


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B) MACH = 4.45



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF 5030 SQ. IN.
(AIH066)	DATA NOT AVAILABLE	270.000	LREF 8000 IN.
(AIH008)	DATA NOT AVAILABLE	270.000	BREF 8000 IN.
(AIH008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

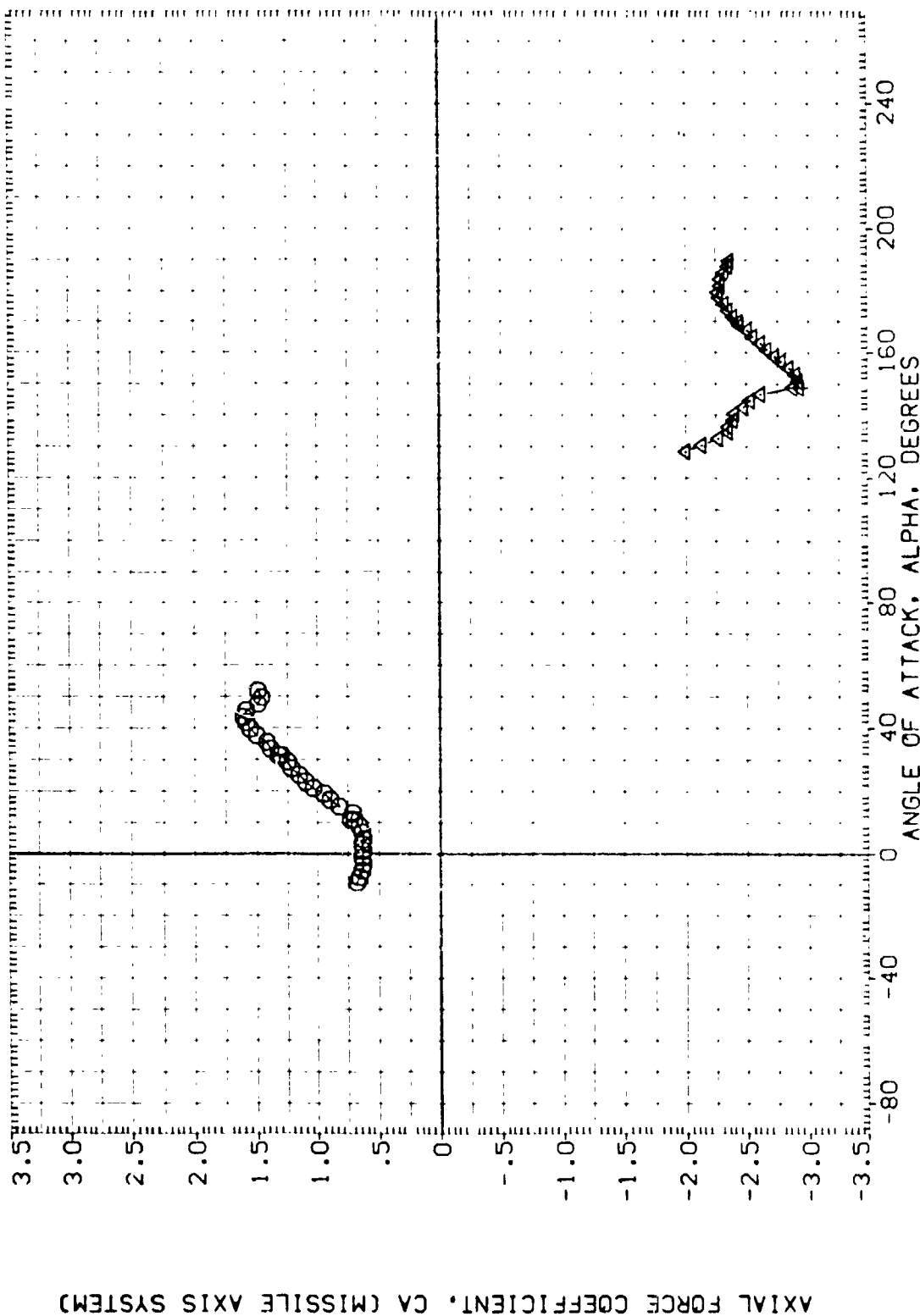


FIGURE 25.STATIC STABILITY CHARACT. OF SRB W/ALL PROTUBERANCES (PHI = 270)

(B)MACH = 4.45

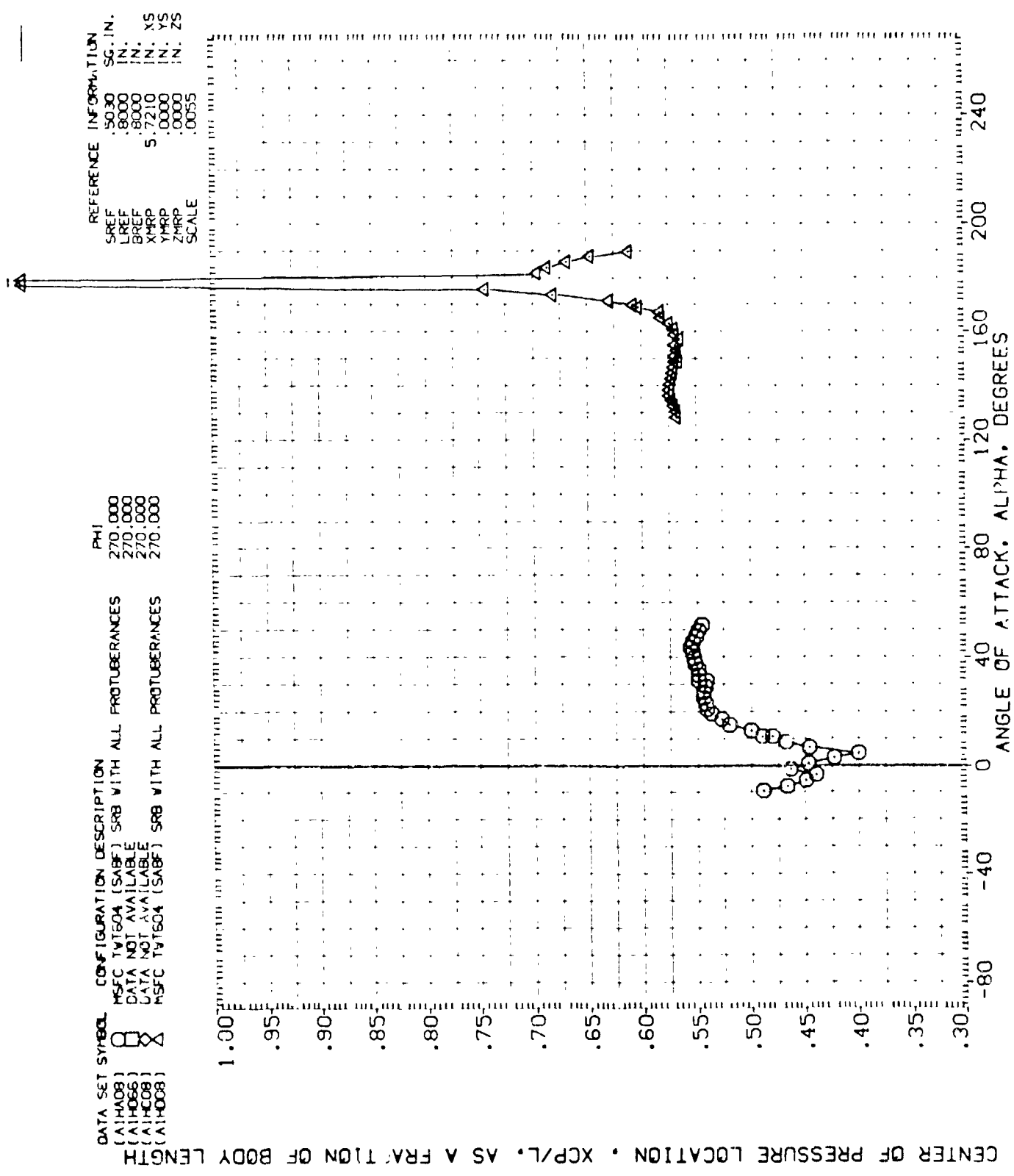


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH008)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	SREF .5030 IN.
(AIH006)	DATA NOT AVAILABLE	270.000	LREF .8000 IN.
(AIH008)	DATA NOT AVAILABLE	270.000	BREF .8000 IN.
(AIH006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	270.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

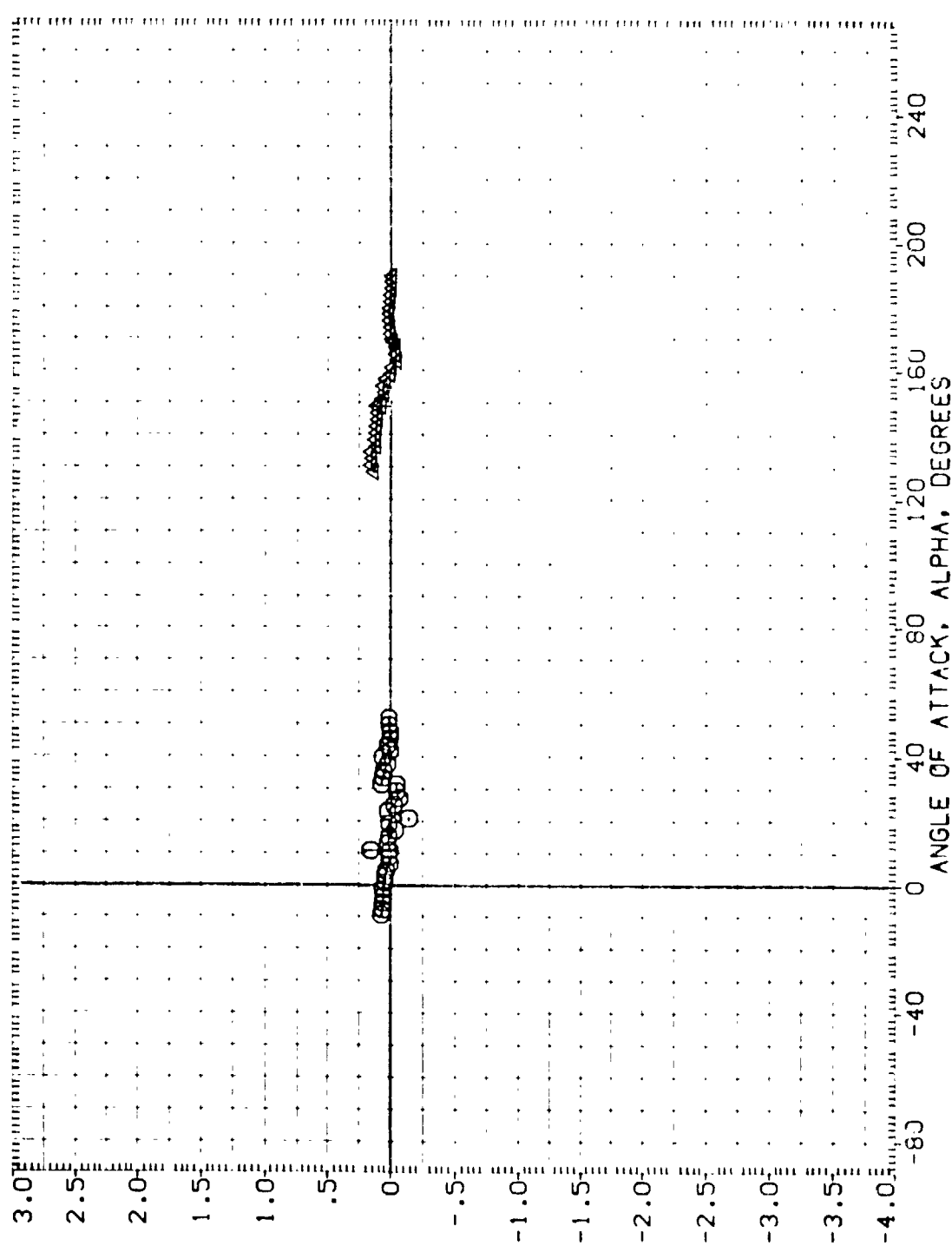
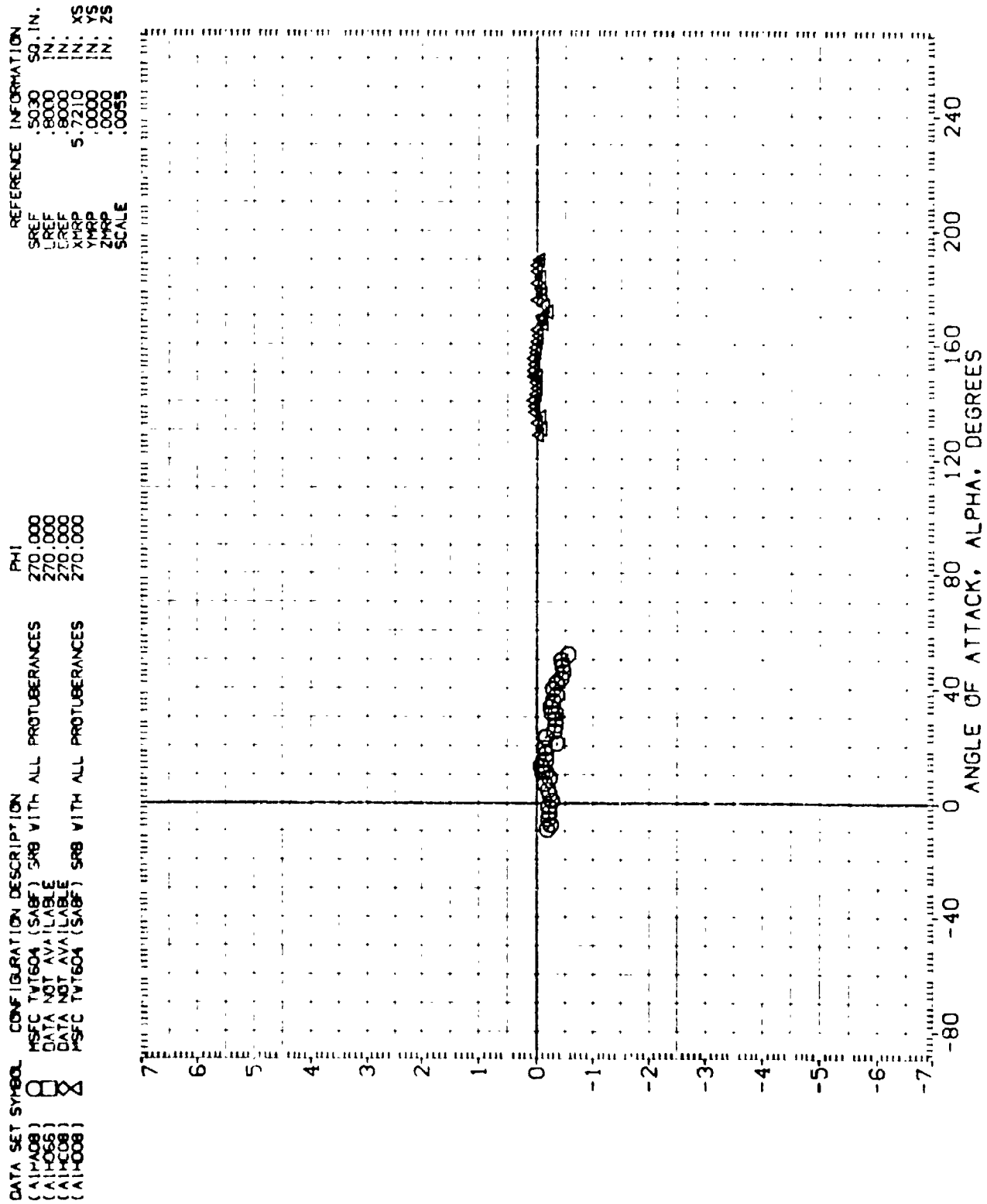


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 270)  
(B) MACH = 4.45

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)



DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H008)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

(A1H006)    DATA NOT AVAILABLE    270.000

(A1H008)    DATA NOT AVAILABLE    270.000

(A1H008)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

REFERENCE INFORMATION

SREF    .5030    SQ. IN.

LREF    .8000    IN.

XMRP    .8000    IN.

YMRP    5.7210    IN.

ZMRP    .0000    IN.

SCALE    .0055    IN.

FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(AIH008)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

(AIH008)    DATA NOT AVAILABLE    270.000

(AIH008)    DATA NOT AVAILABLE    270.000

(AIH008)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    270.000

REFERENCE INFORMATION

SREF    .5030    SQ. IN.

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .0055

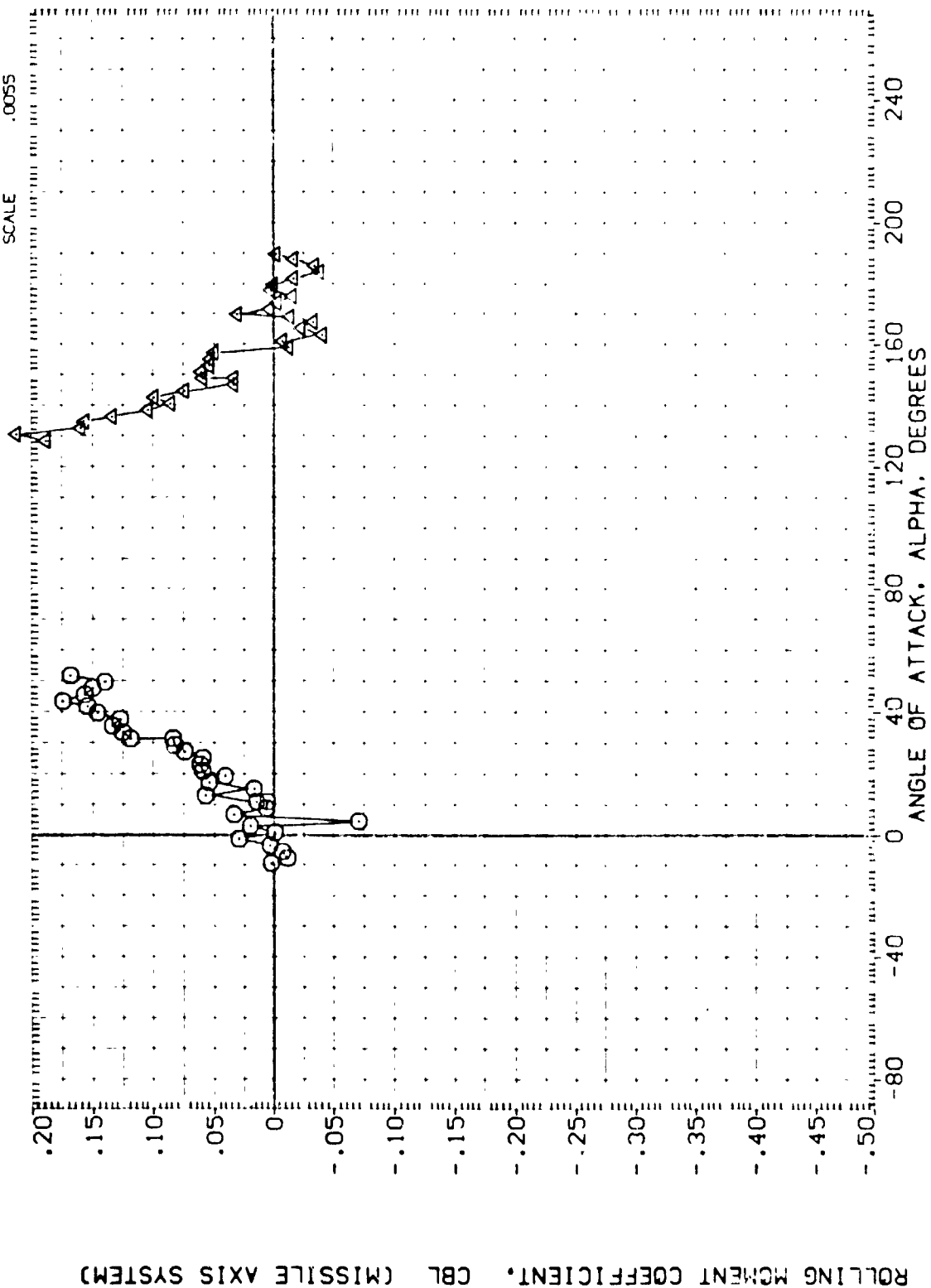


FIGURE 25. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 270)

(B) MACH = 4.45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .3000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

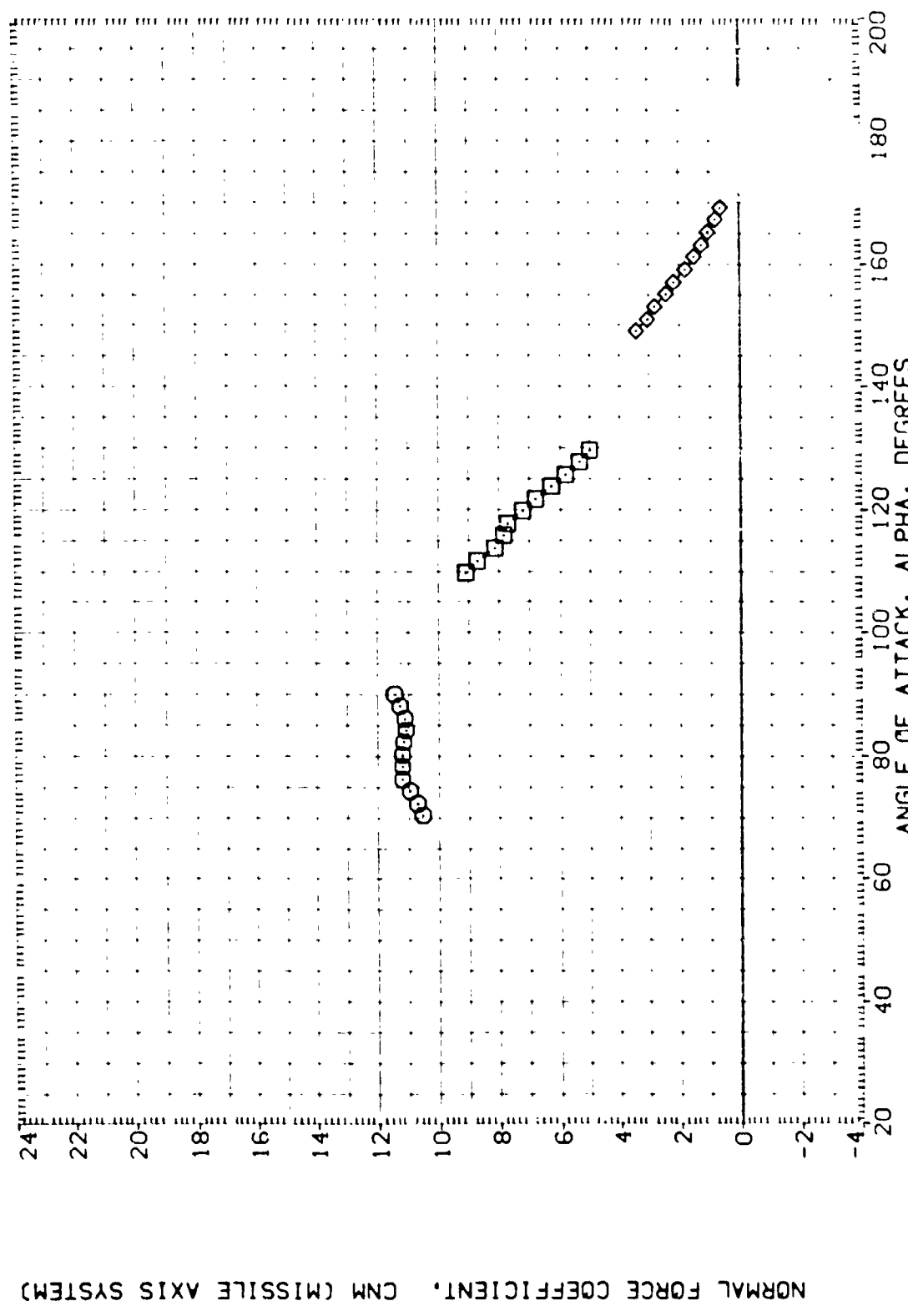


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

(A1)MACH = .39

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SRBF .5030 IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LRBF .8000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BRBF .6000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. VS
			ZMRP .0000 IN. ZS
			SCALE .0055

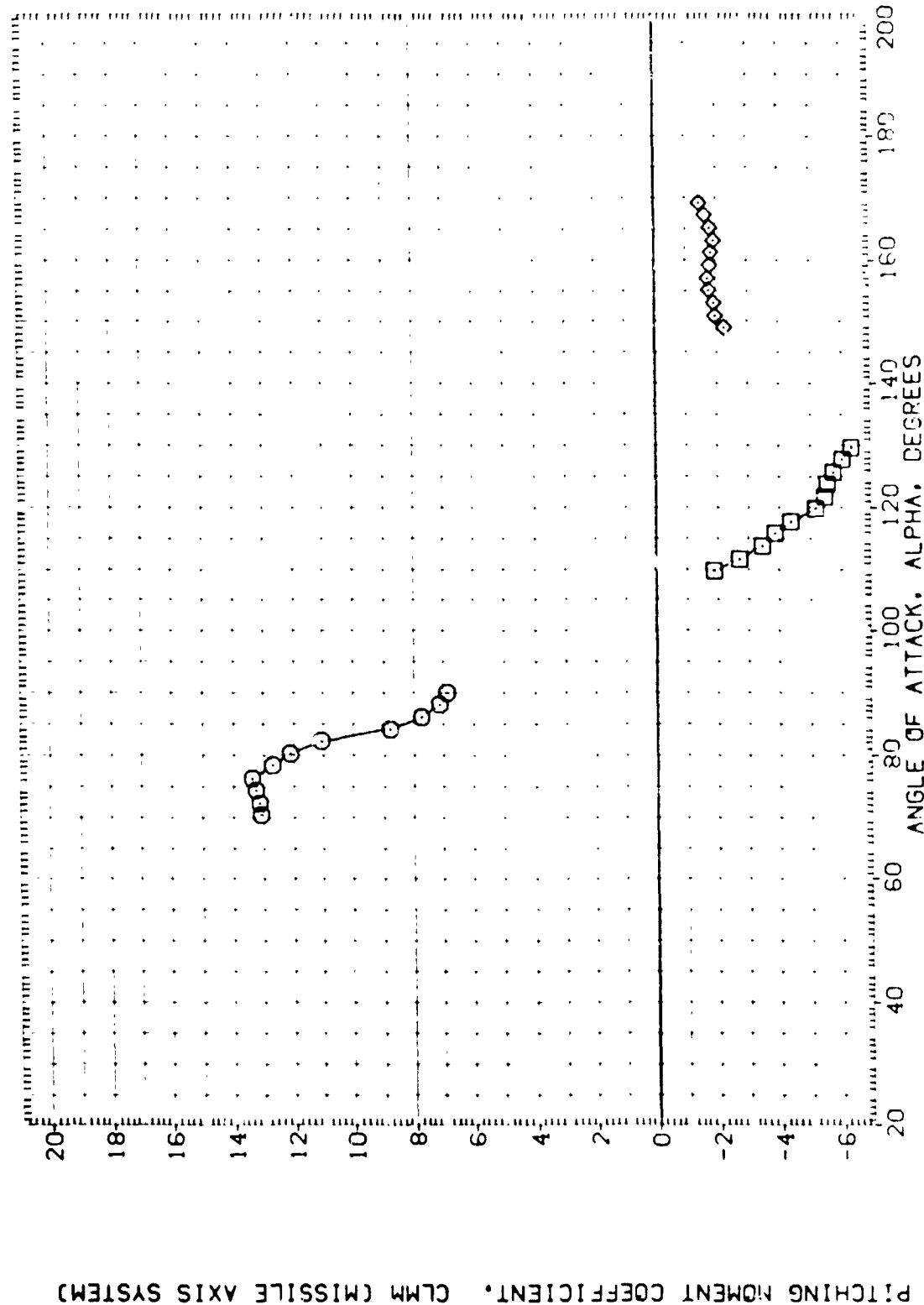


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(A) MACH = .39

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			XMREF 5.7210 IN. XS
			YMREF .0000 IN. YS
			ZMREF .0000 IN. ZS
			SCALE .0055

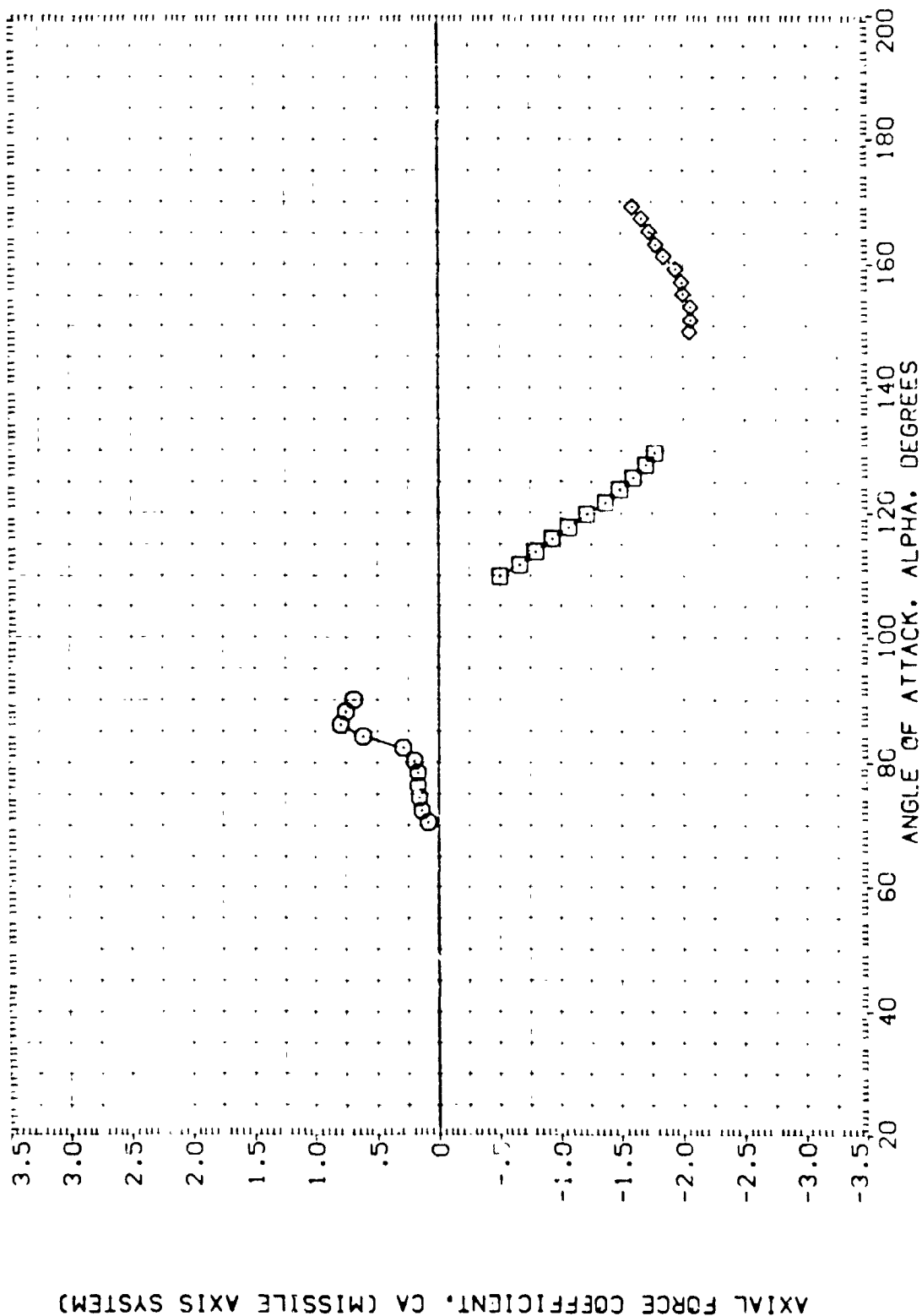


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A1H072)	MSFC TVT604 (SABF) SRB WITH
(A1H073)	MSFC TVT604 (SABF) SRB WITH
(A1H074)	MSFC TVT604 (SABF) SRB WITH

REFERENCE INFORMATION	
SREF	.5030 SQ. IN.
LREF	.8000 IN.
BREF	.8000 IN.
XMRP	5.7210 IN. XS
YMRP	.0000 IN. YS
ZMRP	.0000 IN. ZS
SCALE	.0055

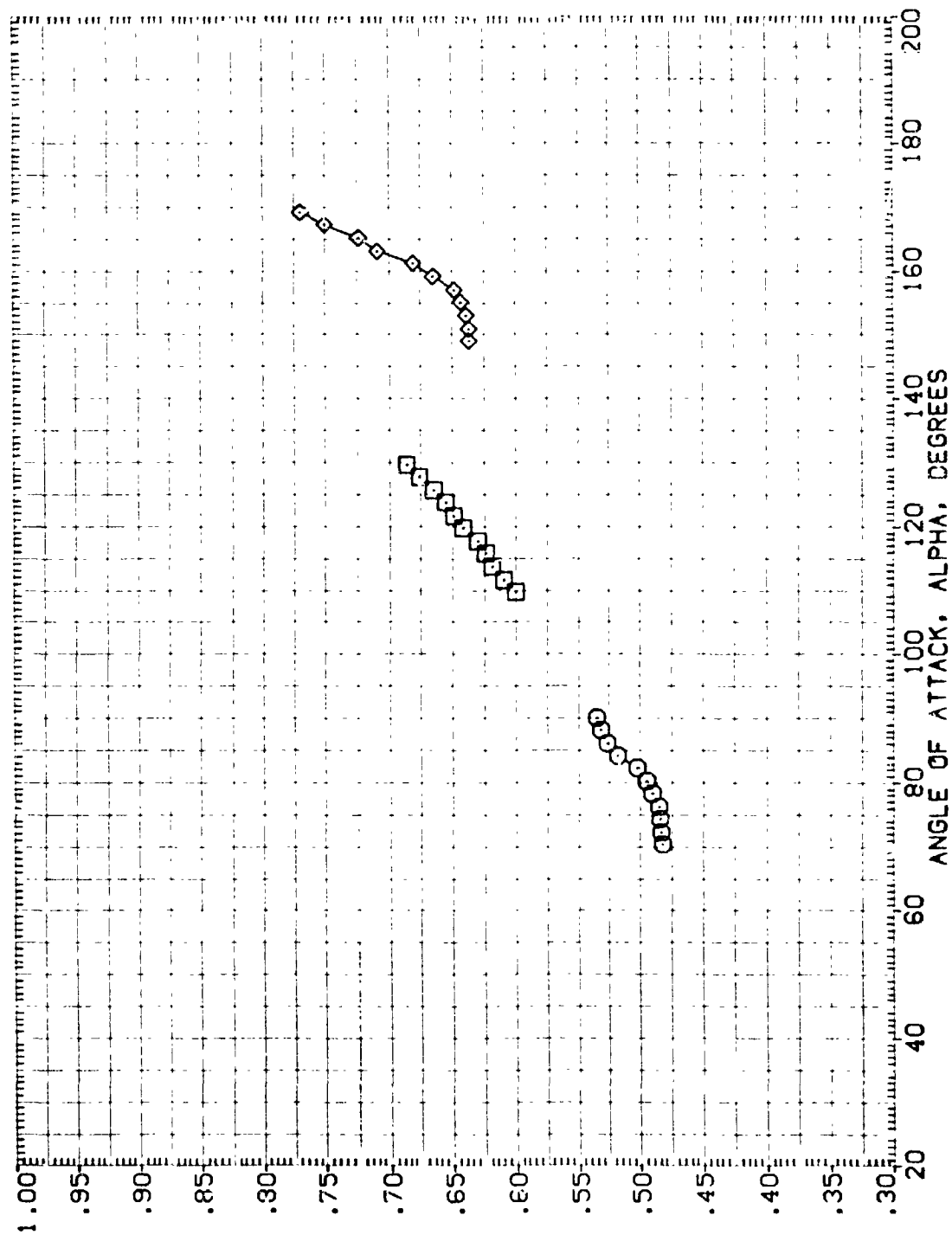


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WALL PROTRUSIONS (PHI = 315)

$[A]_{MACH} = .39$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SRF 5030 SQ. IN.
(AIH073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF 8000 IN.
(AIH074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF 8000 N.
			YMRP 5.7210 N.
			YMRP .0000 N.
			ZMRP .0000 N.
			SCALE .0055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

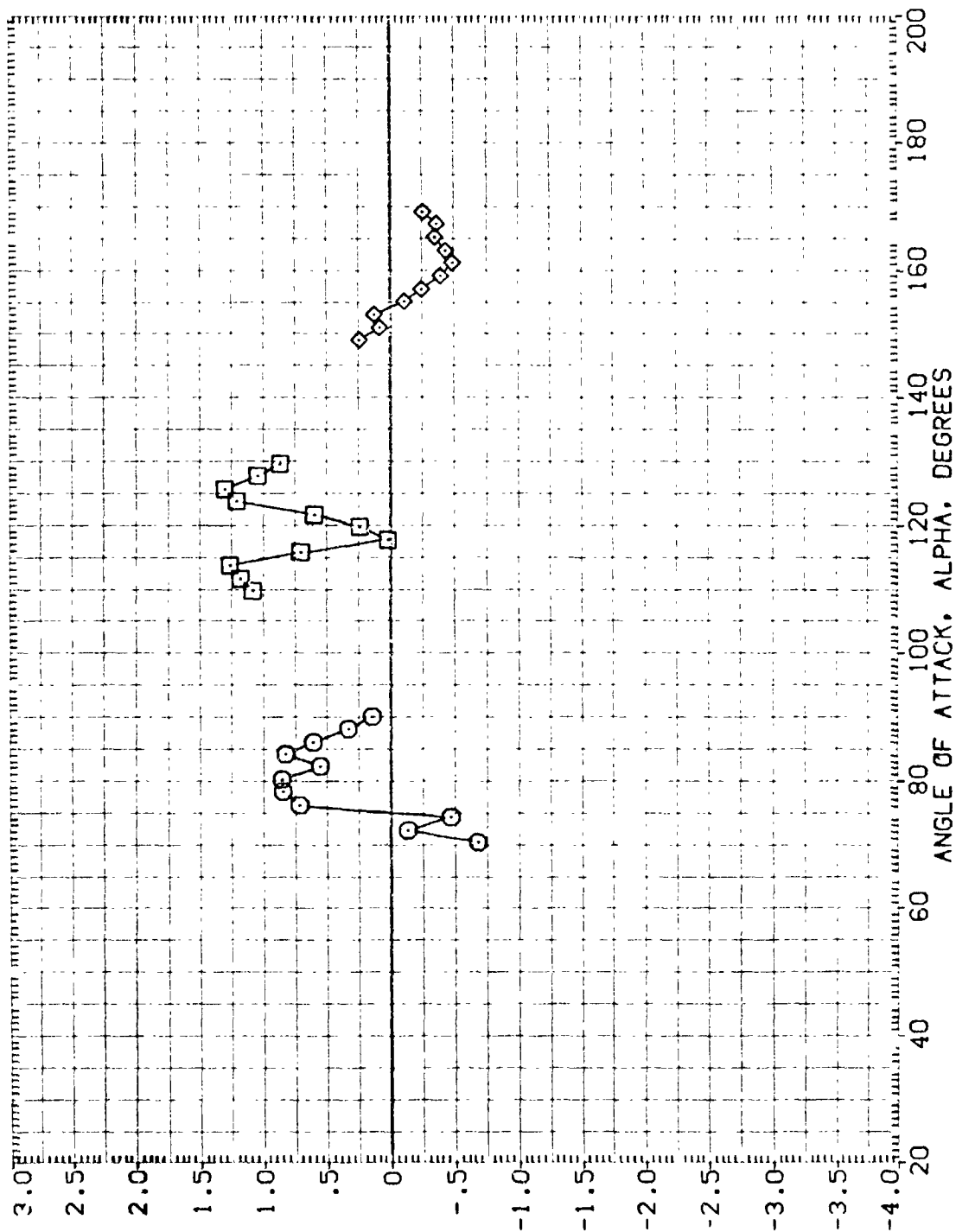


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(A) MACH = .39

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
YMRP	5.7210	IN.
ZMRP	.0000	IN.
SCALE	.0055	IN.

PHI

315.000
315.000
315.000

CONFIGURATION DESCRIPTION

MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TV1604 (SABF)	SRB WITH ALL PROTUBERANCES

DATA SET SYMBOL

(A1H072)
(A1H073)
(A1H074)

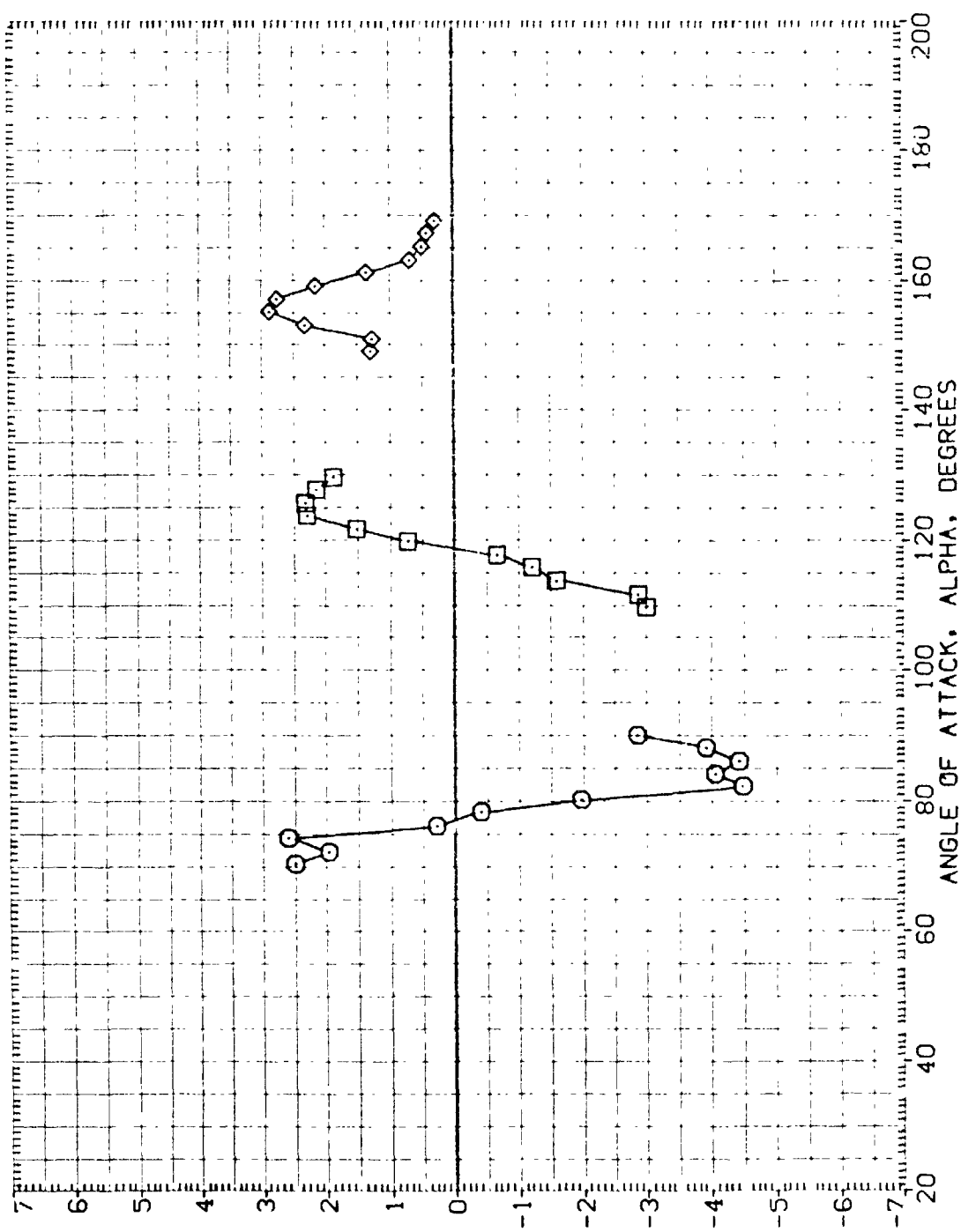


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(A)MACH = .39

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ.IN.
(A1H073)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			SCALE .0055

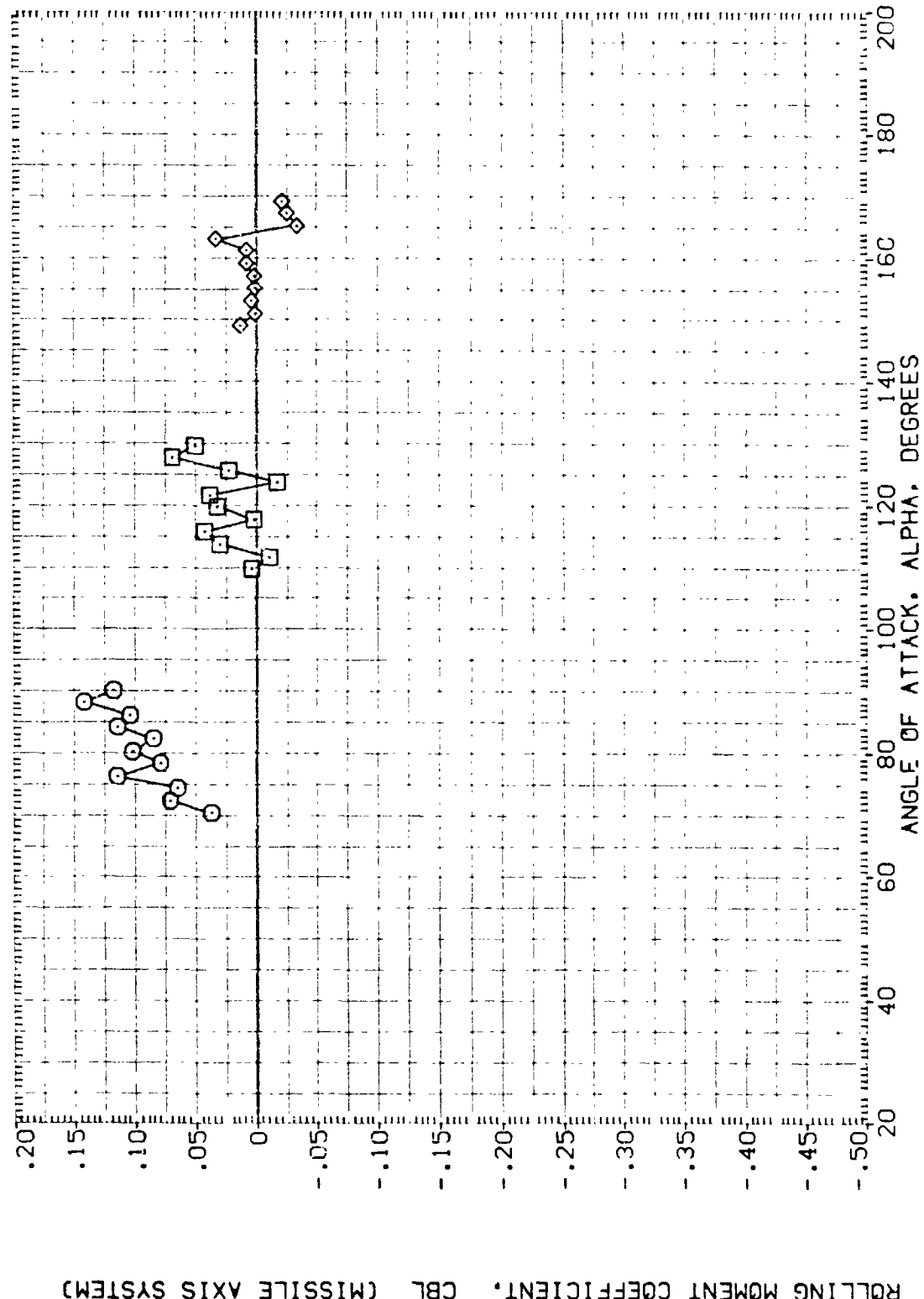


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(A)MACH = .39

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H072)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

(A1H073)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

(A1H074)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

REFERENCE INFORMATION

SREF    5030    52. IN.

LREF    8000    IN.

BREF    8000    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .0055

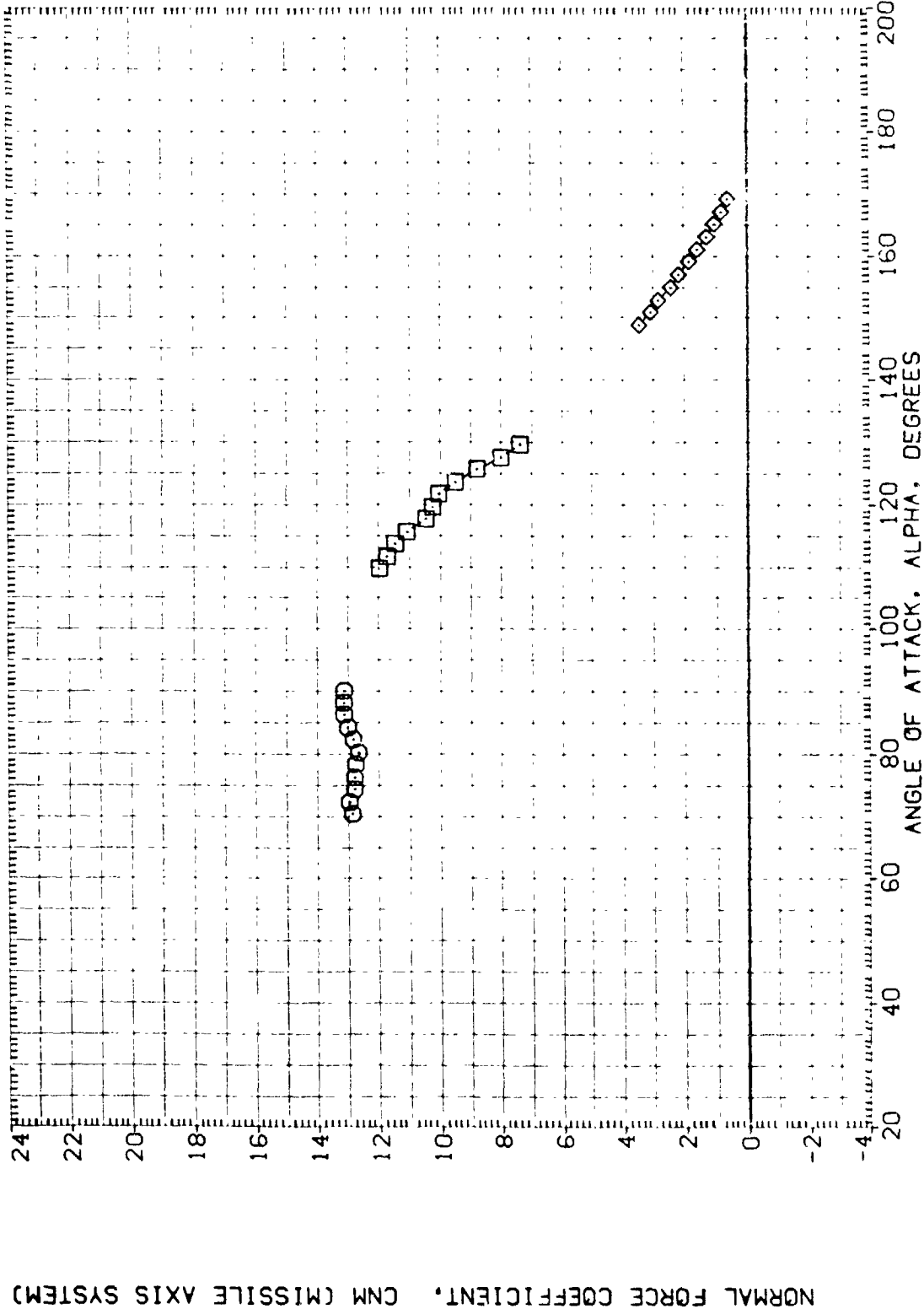


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ. IN.
(A1H073)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SA8F) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0035 IN. ZS

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

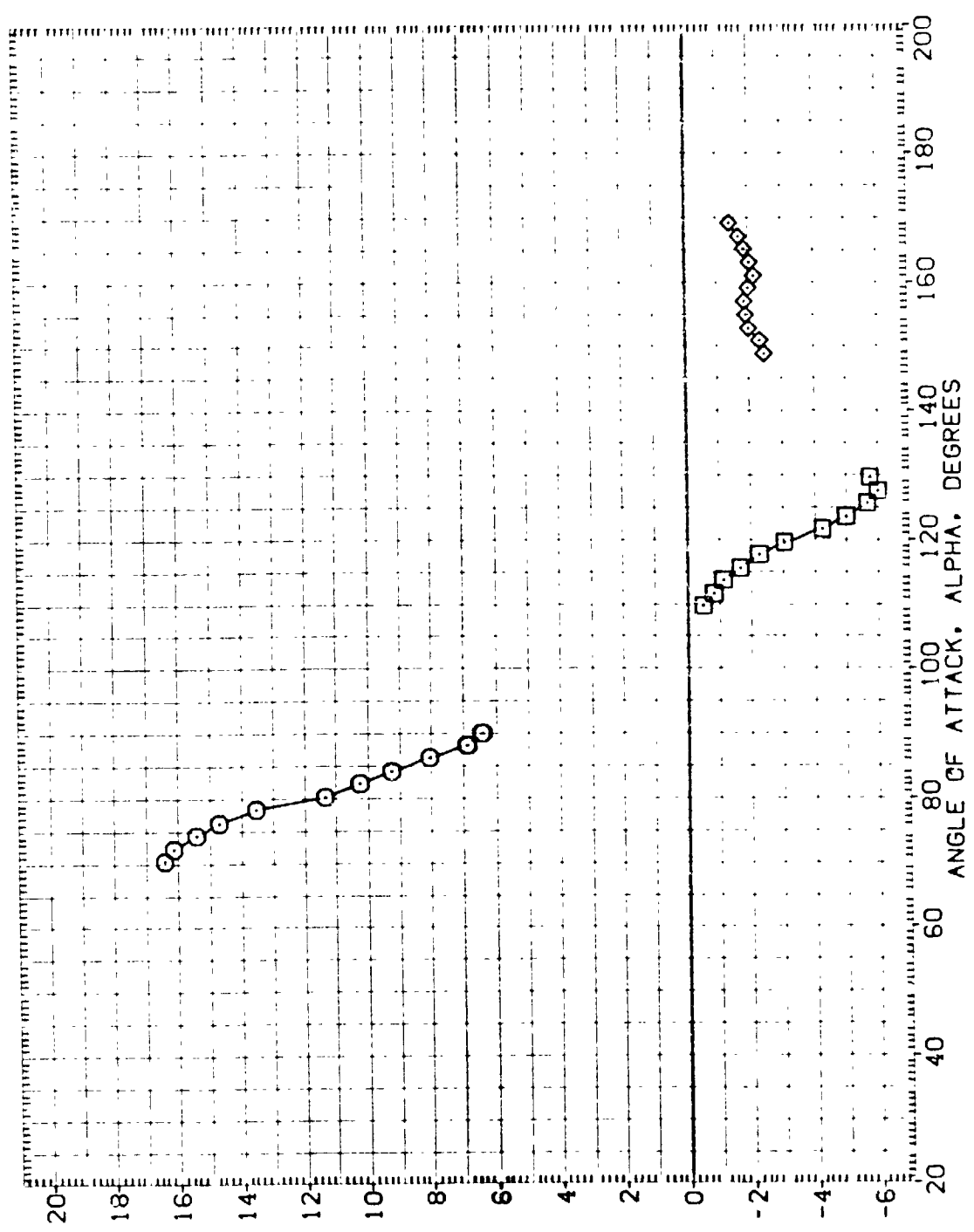


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			XMRF 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

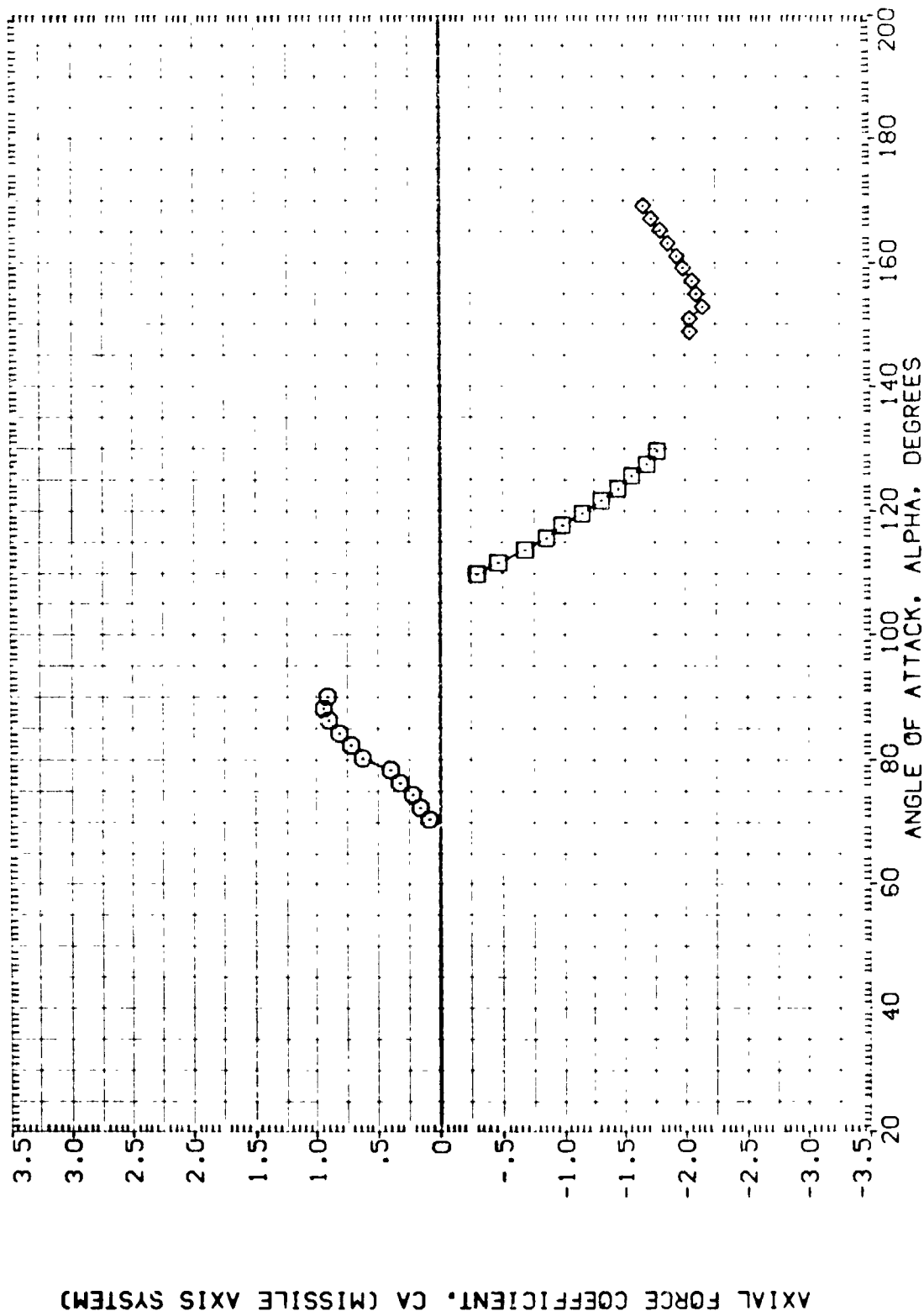


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(B) MACH = .60

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DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H072)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

(A1H073)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

(A1H074)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    315.000

REFERENCE INFORMATION

SREF    .5030    50. IN.

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN. XS

YMRP    .0000    IN. YS

ZMRP    .0000    IN. ZS

SCALE    .0055

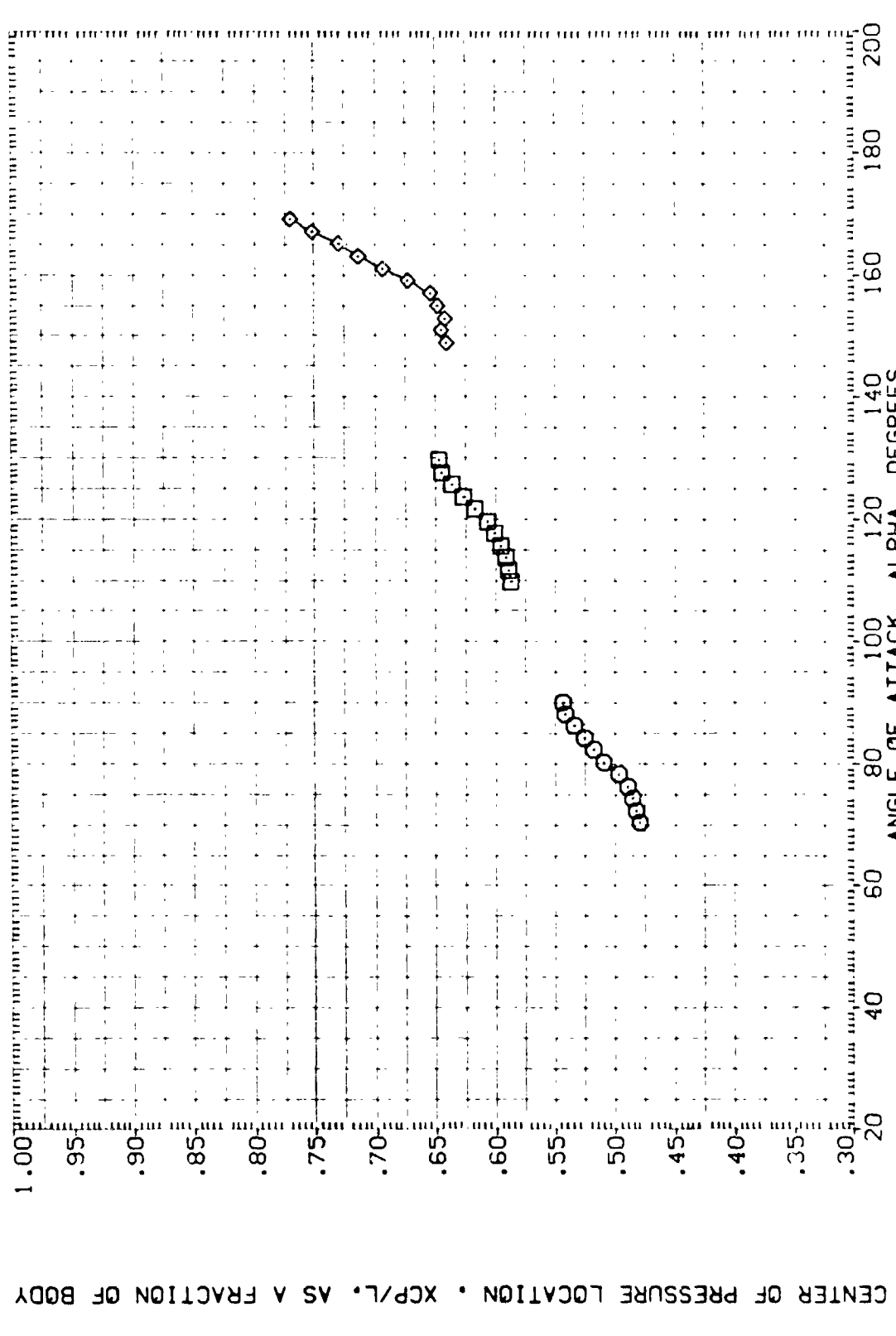


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WALL PROTUBERANCES (PHI = 3.5)

(B)MACH = 1.60



DATA SET SYMBOL  
(A1H072)  
(A1H073)  
(A1H074)

CONFIGURATION DESCRIPTION  
MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES

PHI  
315.000  
315.000  
315.000

REFERENCE INFORMATION  
SREF .5030 SQ. IN.  
LREF 9000 IN.  
BREF 8000 IN.  
XMRP 5.7210 IN. XS  
YMRP .0000 IN. YS  
ZMRP .0000 IN. ZS  
SCALE .0055

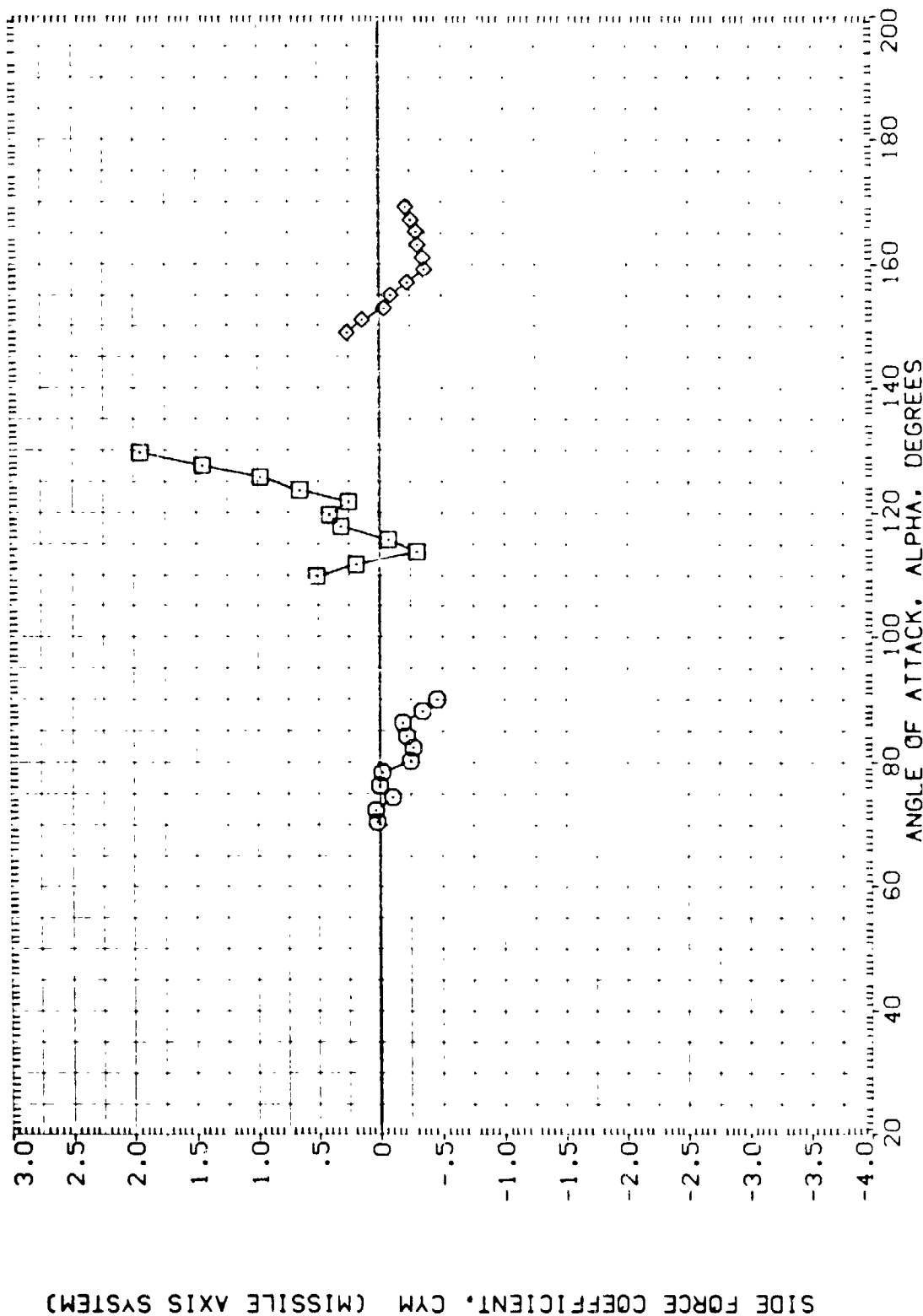


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ. IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .0000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

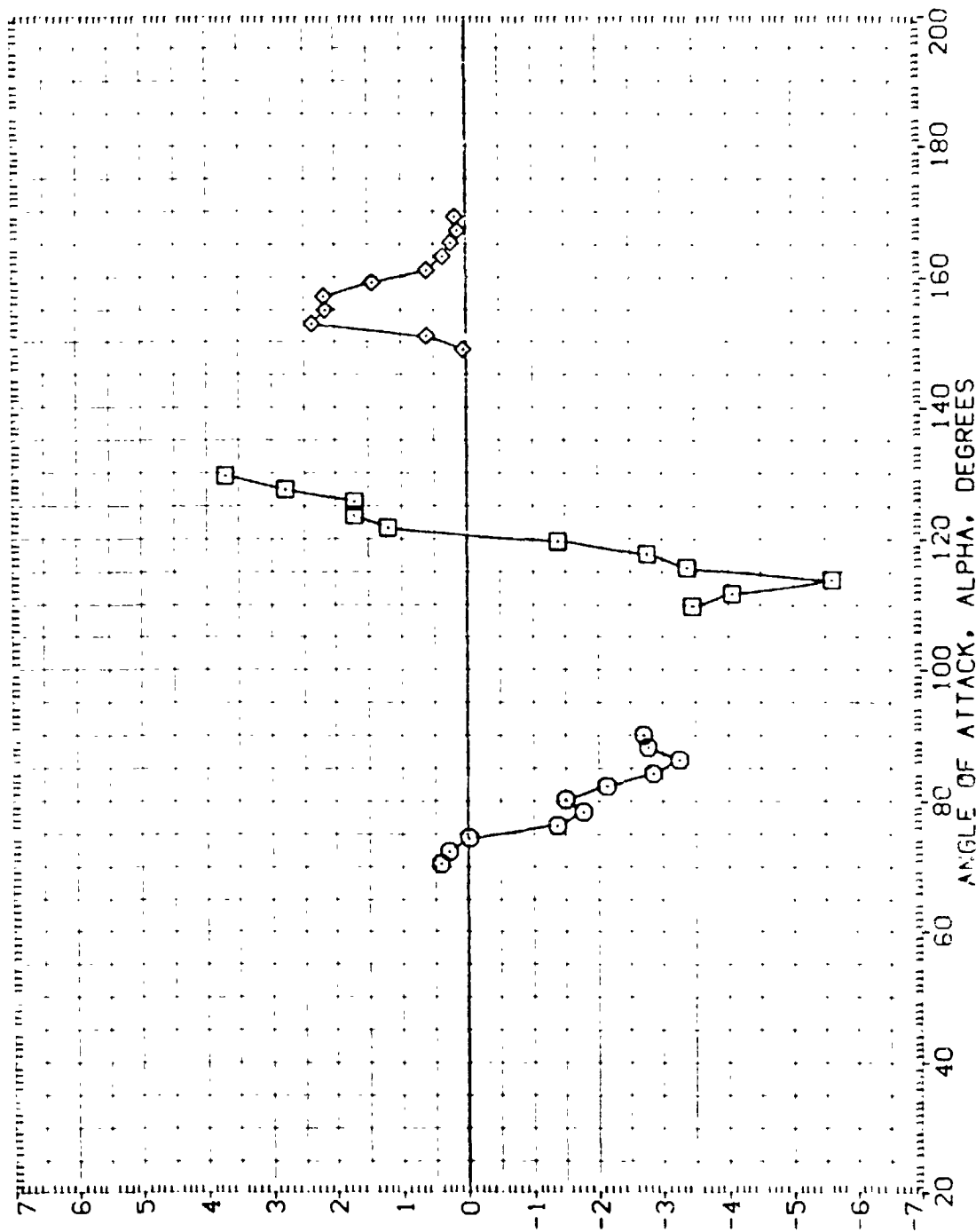


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(B) MACH = .60

DATA SET SYMBOL	SYMBOL
(A1H072)	
(A1H073)	
(A1H074)	

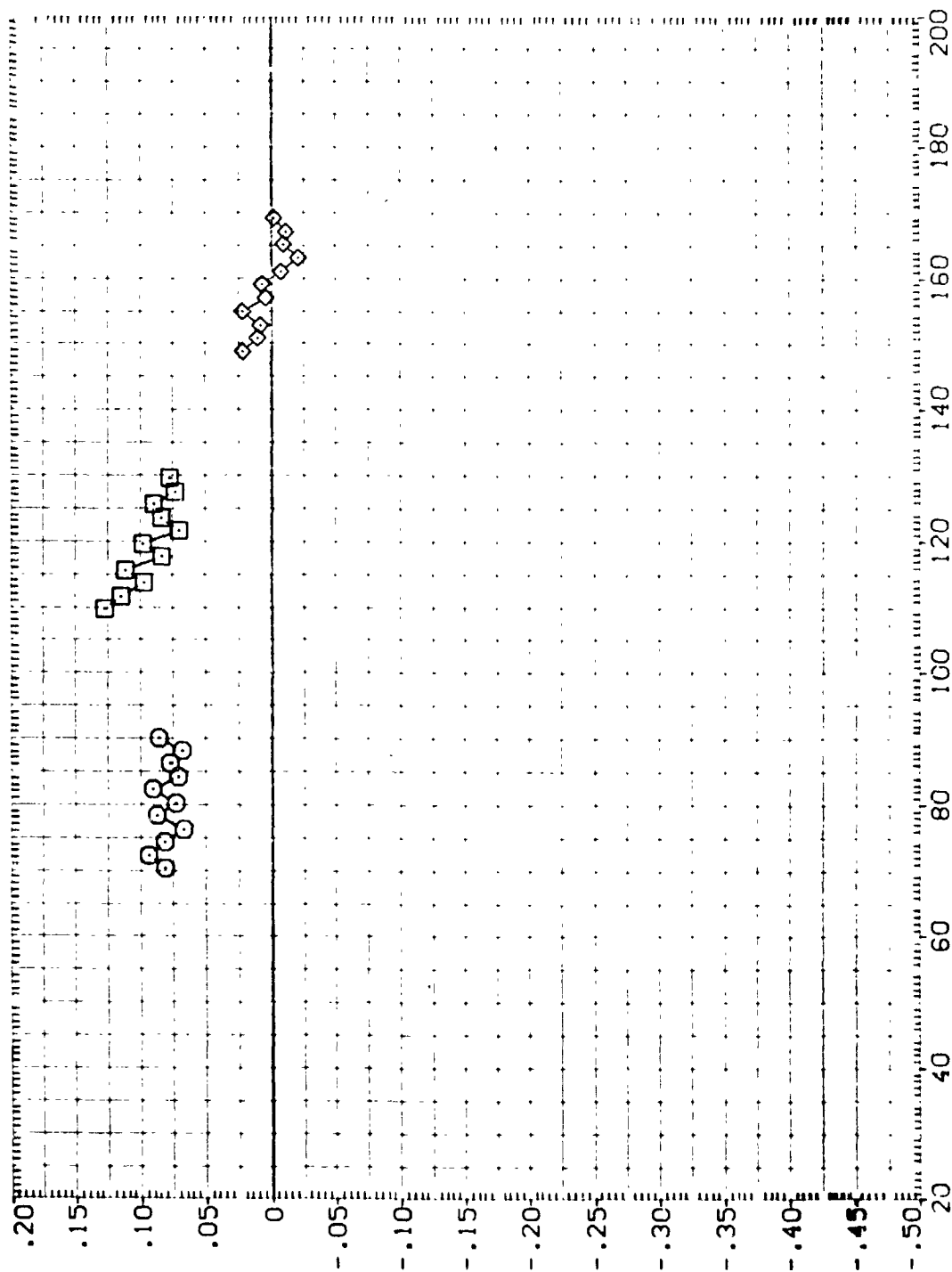


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES ( $\Phi = 315^\circ$ )

(B)MACH = .60

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ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1-H072)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 IN.
(A1-H073)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1-H074)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

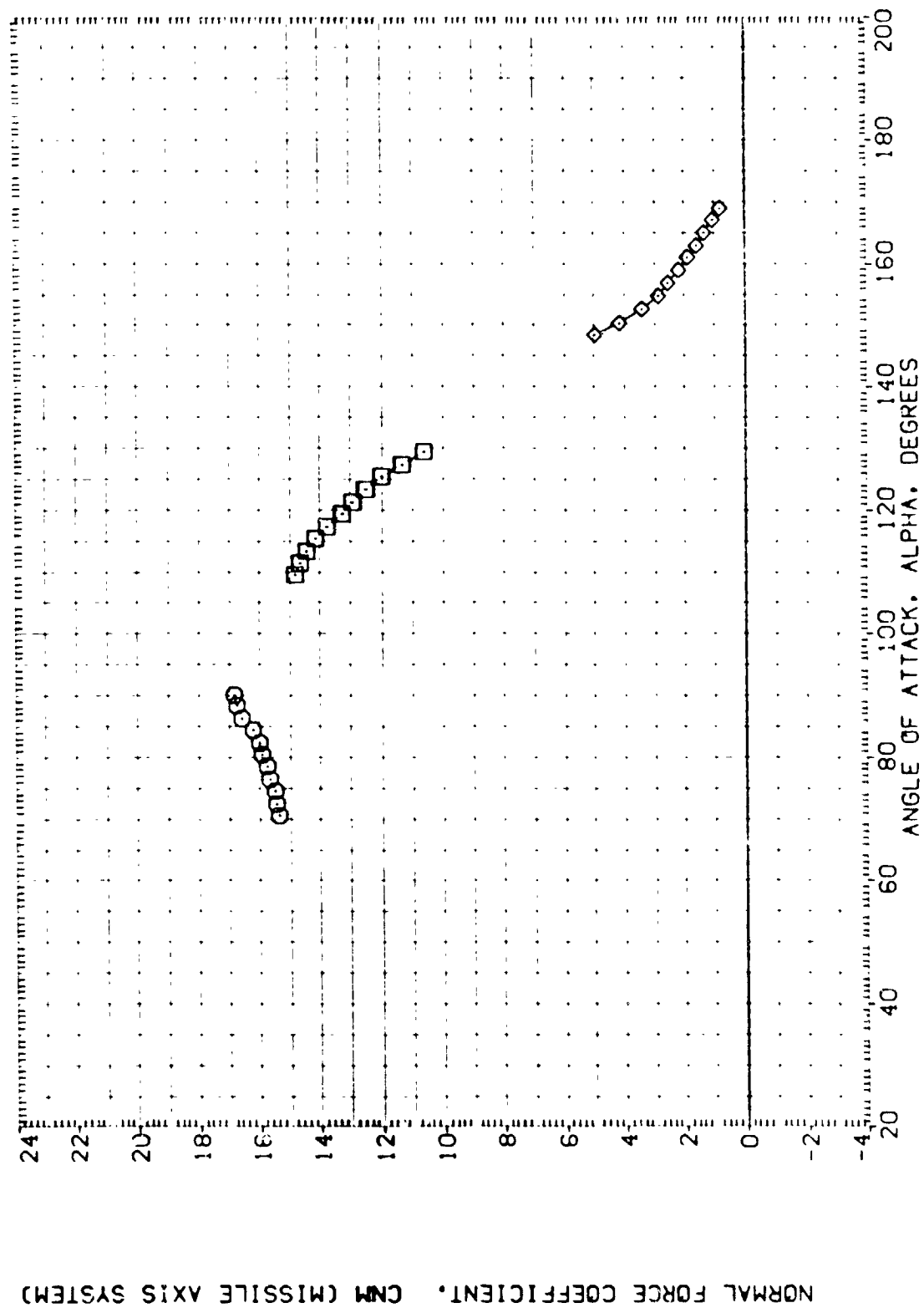


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(C)MACH = .90

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 50. IN.
(A1H073)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 N.
(A1H074)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 N.
			XMPP 5.7210 N. XS
			YMPP .0000 N. YS
			ZMPP .0000 N. ZS
			SCALE .0055

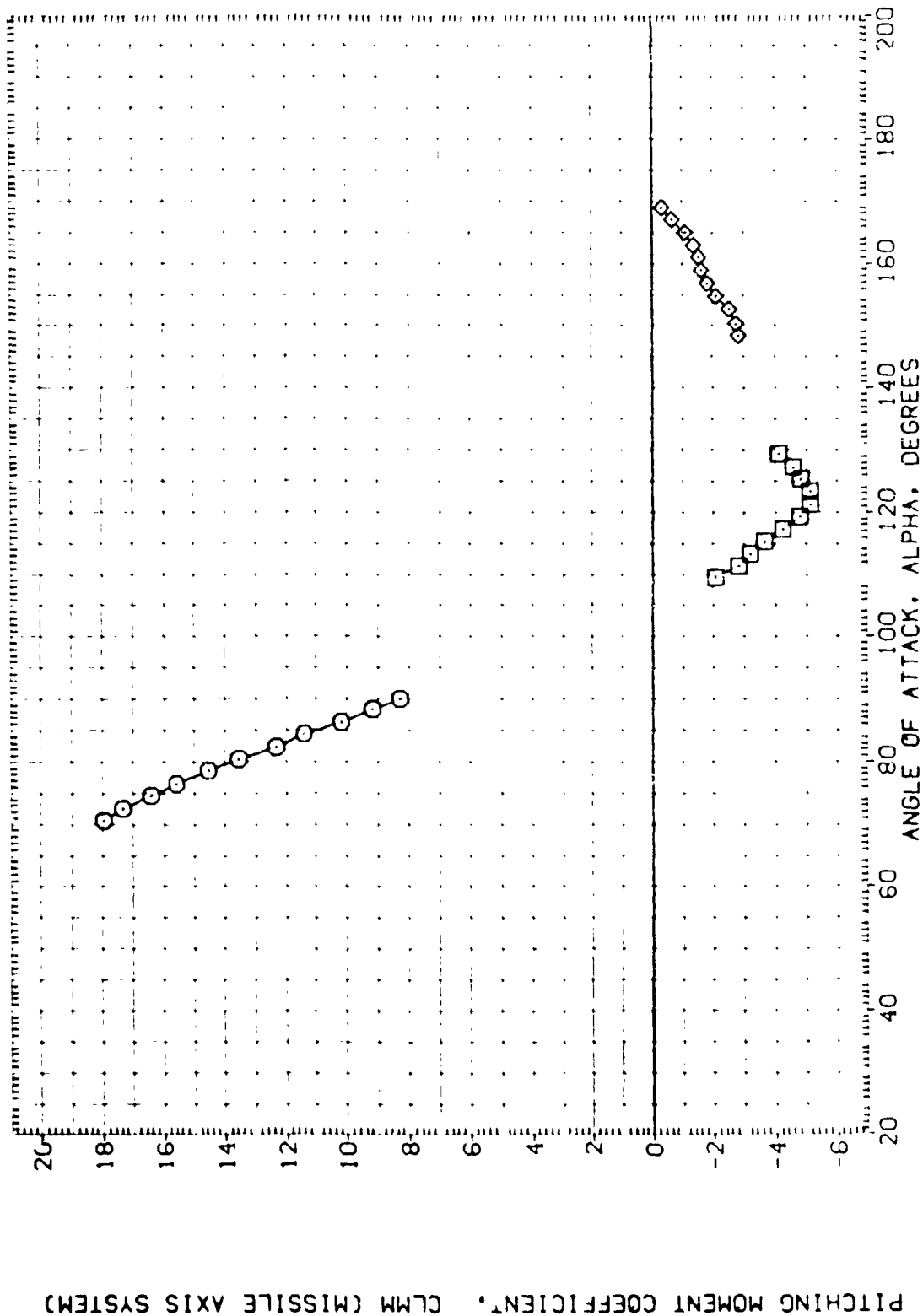


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	315.000	SREF .5000 SQ. IN.
(A1H073)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SAB) SRB WITH ALL PROTUBERANCES	315.000	SREF .9000 IN.
			XREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

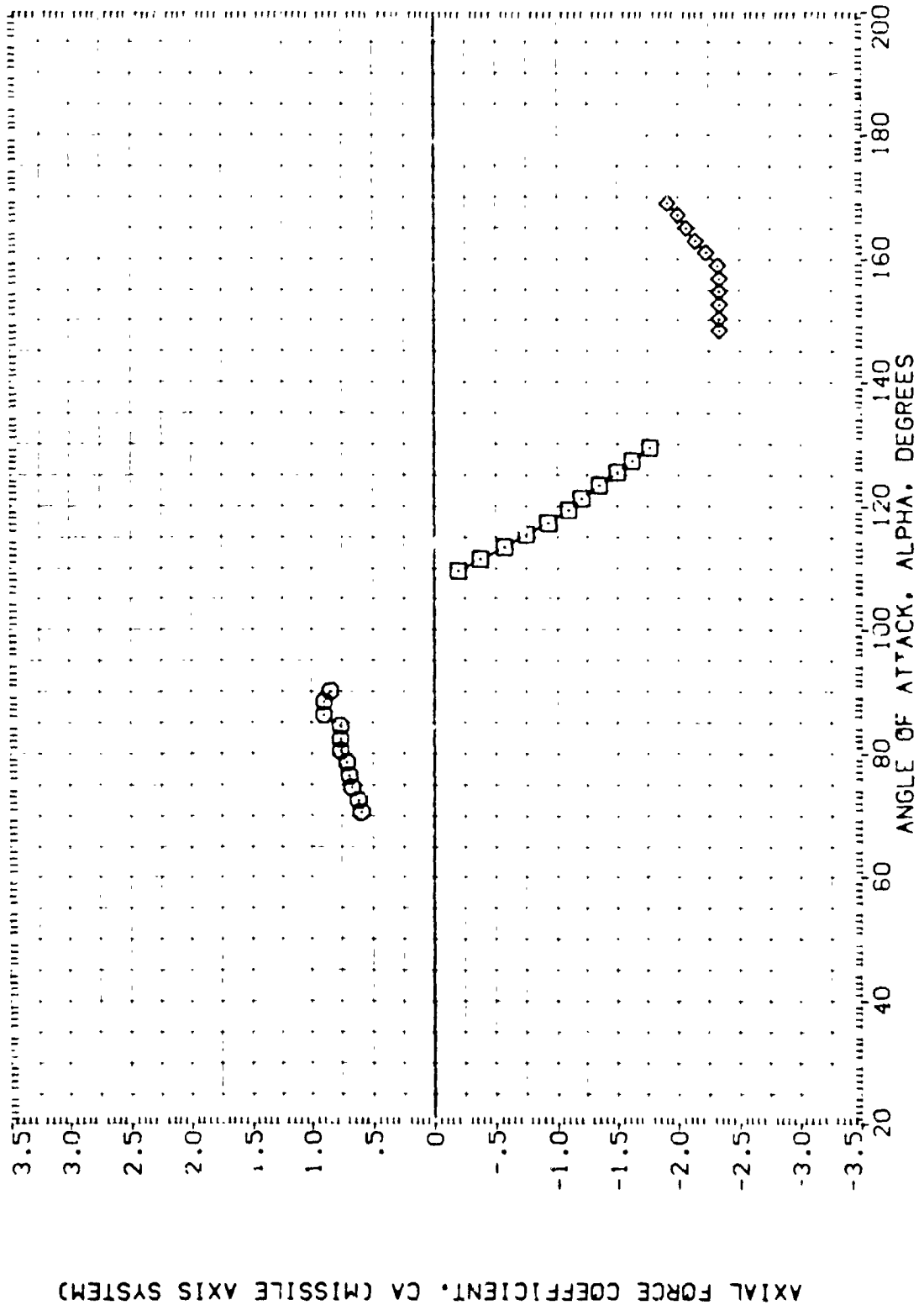


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

DATA SET SYMBOL	SYMBOL
(A1H072)	
(A1H073)	
(A1H074)	

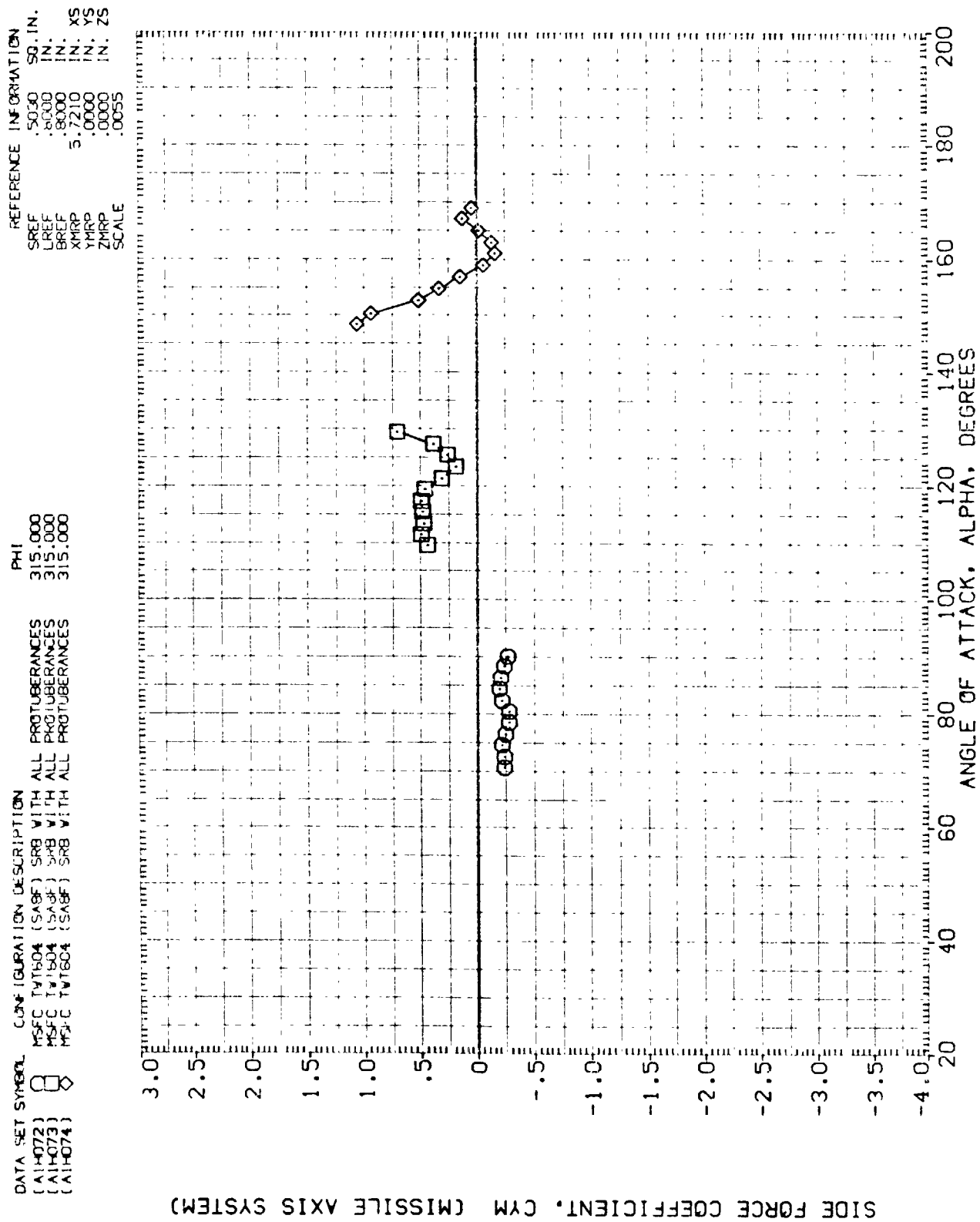
A graph showing the normalized velocity components  $u^+$  and  $v^+$  as a function of the angle of attack  $\alpha$  (in degrees) for a flat plate. The x-axis represents the angle of attack  $\alpha$  from 20 to 200 degrees. The y-axis represents the normalized velocity components from 0.30 to 1.00. Two data series are plotted:  $u^+$  (represented by open circles) and  $v^+$  (represented by open squares). Both series show a sharp increase in velocity components as the angle of attack increases, starting around 100 degrees and peaking around 160 degrees.

Angle of Attack, $\alpha$ (DEGREES)	$u^+$	$v^+$
100	0.50	0.60
110	0.52	0.62
120	0.54	0.64
130	0.56	0.66
140	0.58	0.68
150	0.60	0.70
160	0.62	0.72
170	0.64	0.74
180	0.66	0.76
190	0.68	0.78
200	0.70	0.80

FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

$$C(MACH) = .90$$

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DATA SET SYMBOL		CONFIGURATION DESCRIPTION		PHI	
(A1H072)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	315.000	
(A1H073)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	315.000	
(A1H074)	MSFC TVT604 (SABF)	SRB WITH ALL	PROTUBERANCES	315.000	

REFERENCE INFORMATION	
SRLE	.5030 IN.
LRLE	.8000 IN.
BRLE	.8000 IN.
XRMP	5.72:0 IN. YS
YMRP	.0000 IN. YS
ZMRP	.0000 IN. ZS
SCALE	.0055

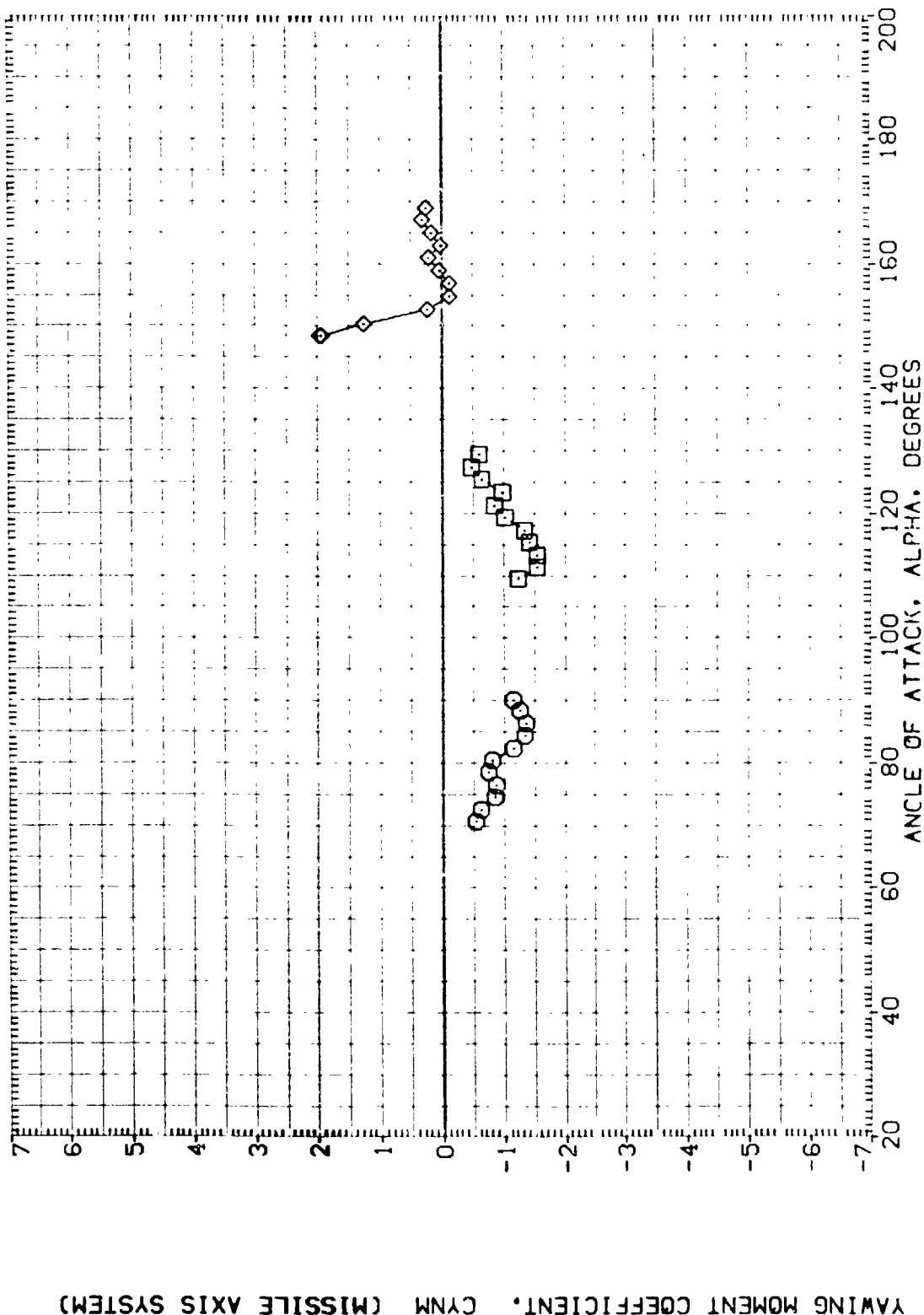


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 5)

(C)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H072)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF 5030 50. IN.
(A)H073)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF 8000 IN.
(A)H074)	MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF 8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

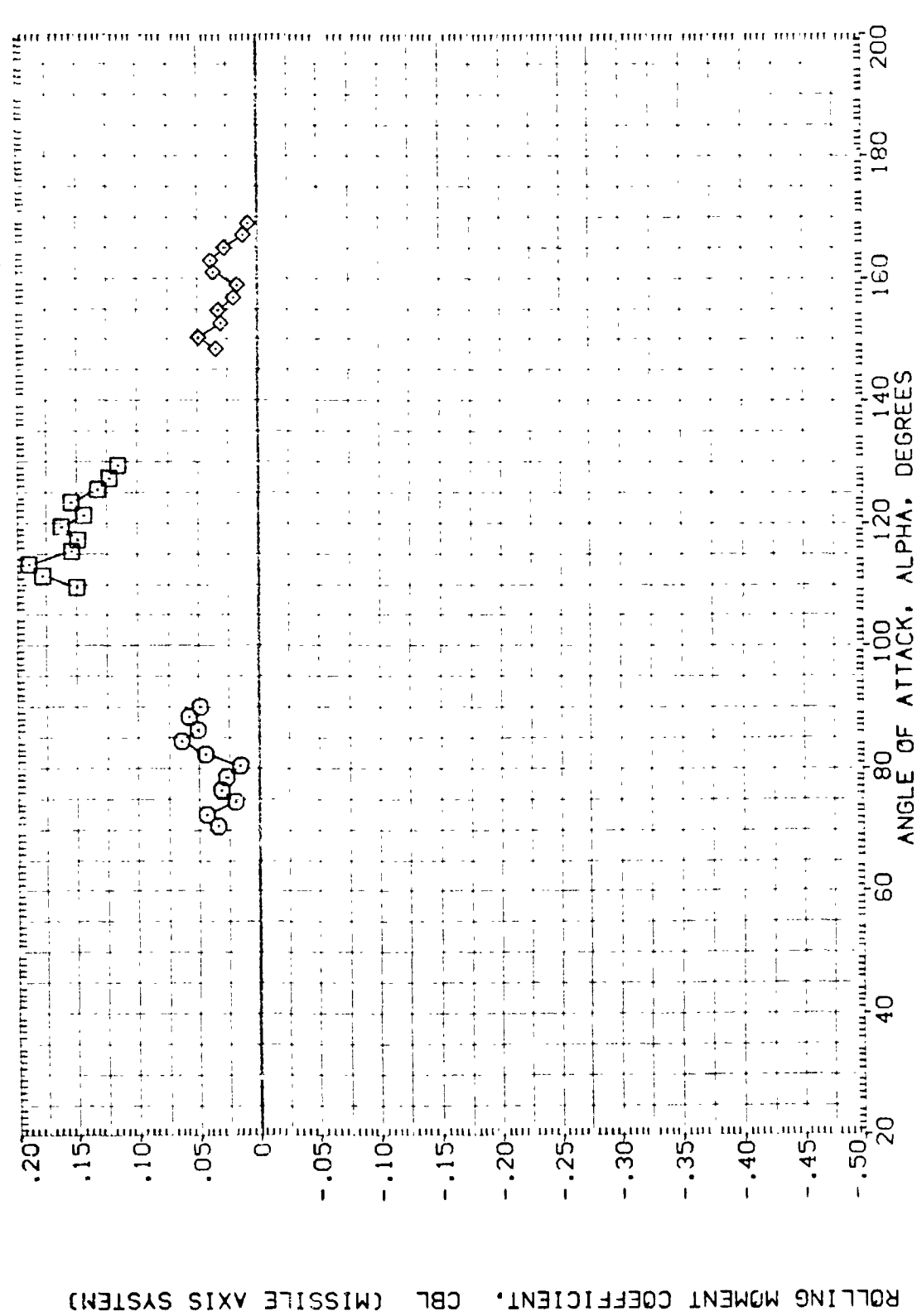


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 IN.
(AIH073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(AIH074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BRCF .8000 IN.
			5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

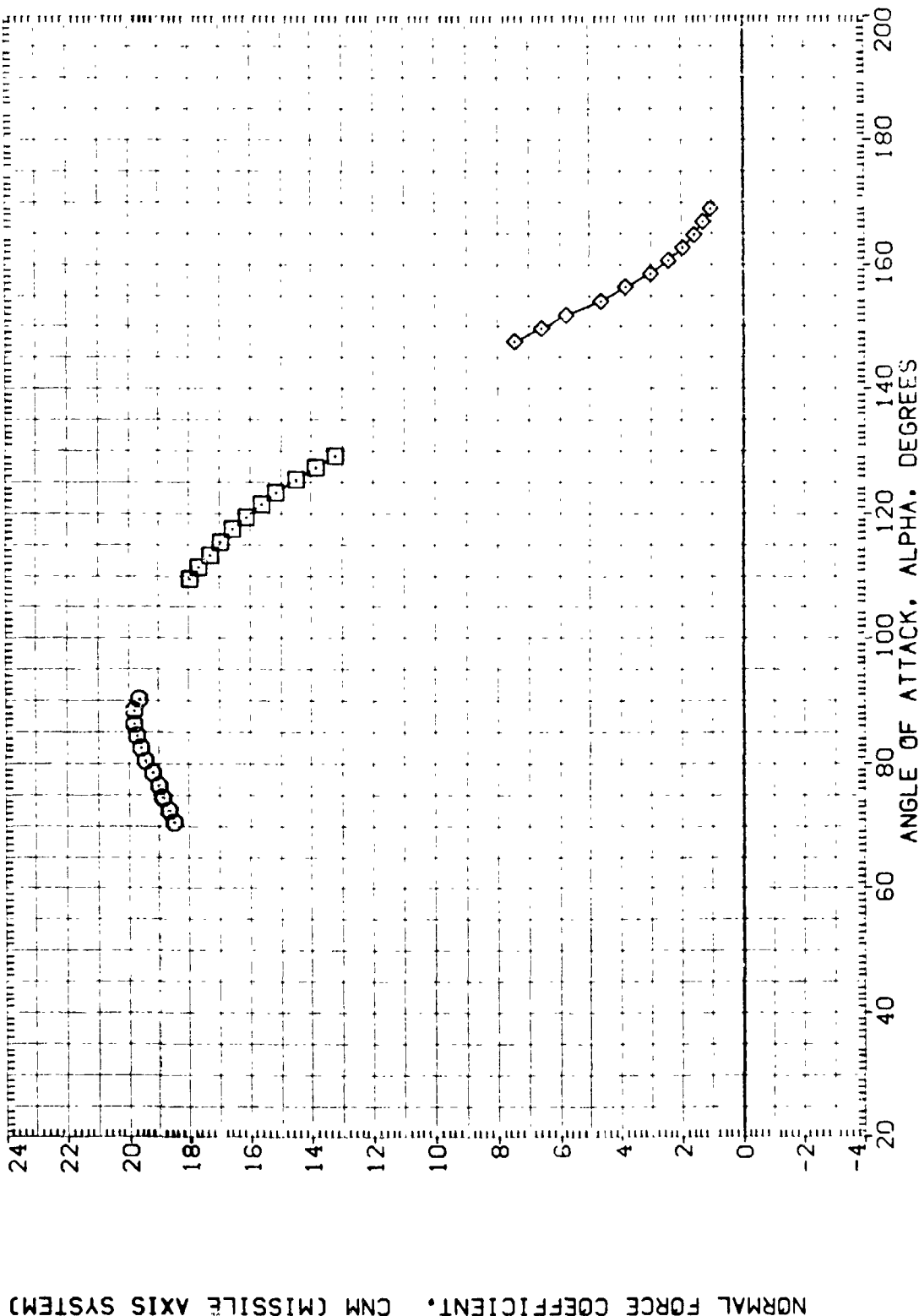


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ.IN.
(A1H073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			AMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

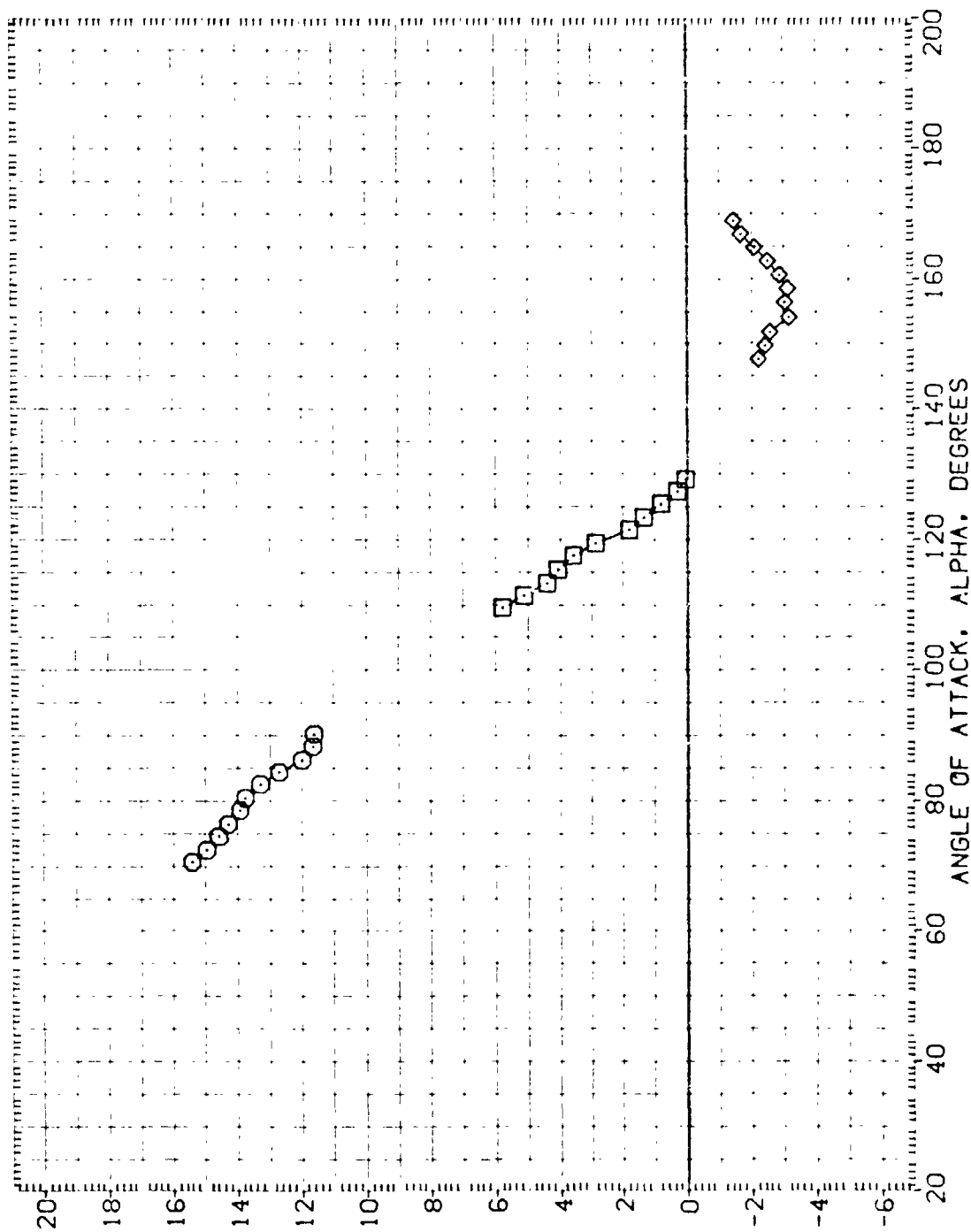


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(C)MACH = 0.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H072)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ. IN.
(A1H073)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(A1H074)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

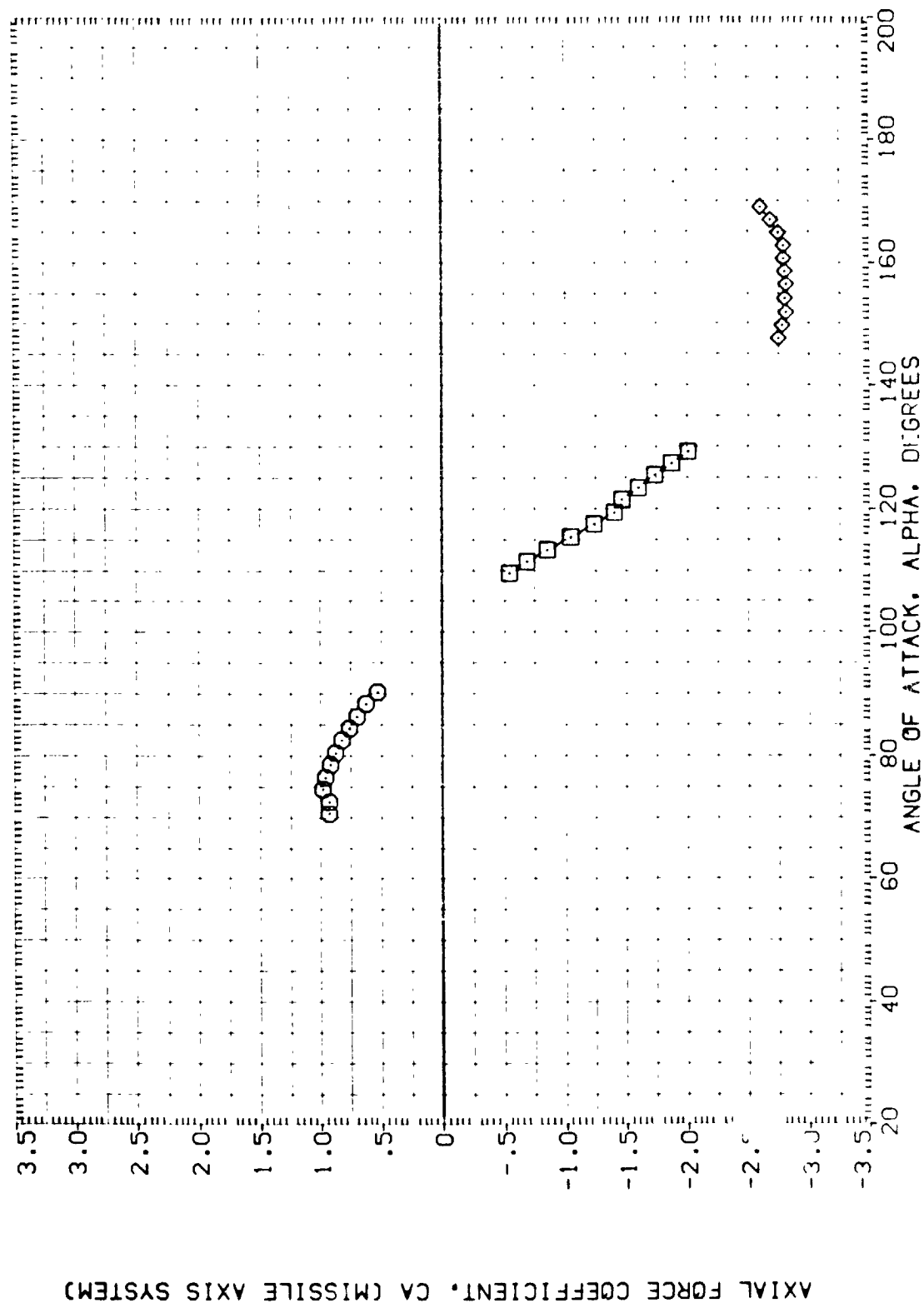


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      FH1      REFERENCE INFORMATION

(A1H072)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF	.5030	SQ. IN.
(A1H073)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF	.8000	IN.
(A1H074)	MSFC TVT504 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF	.8000	IN.
			XMRP	5.7210	IN. XS
			YMRP	.0000	IN. YS
			ZMRP	.0000	IN. ZS
			SCALE	.0055	

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

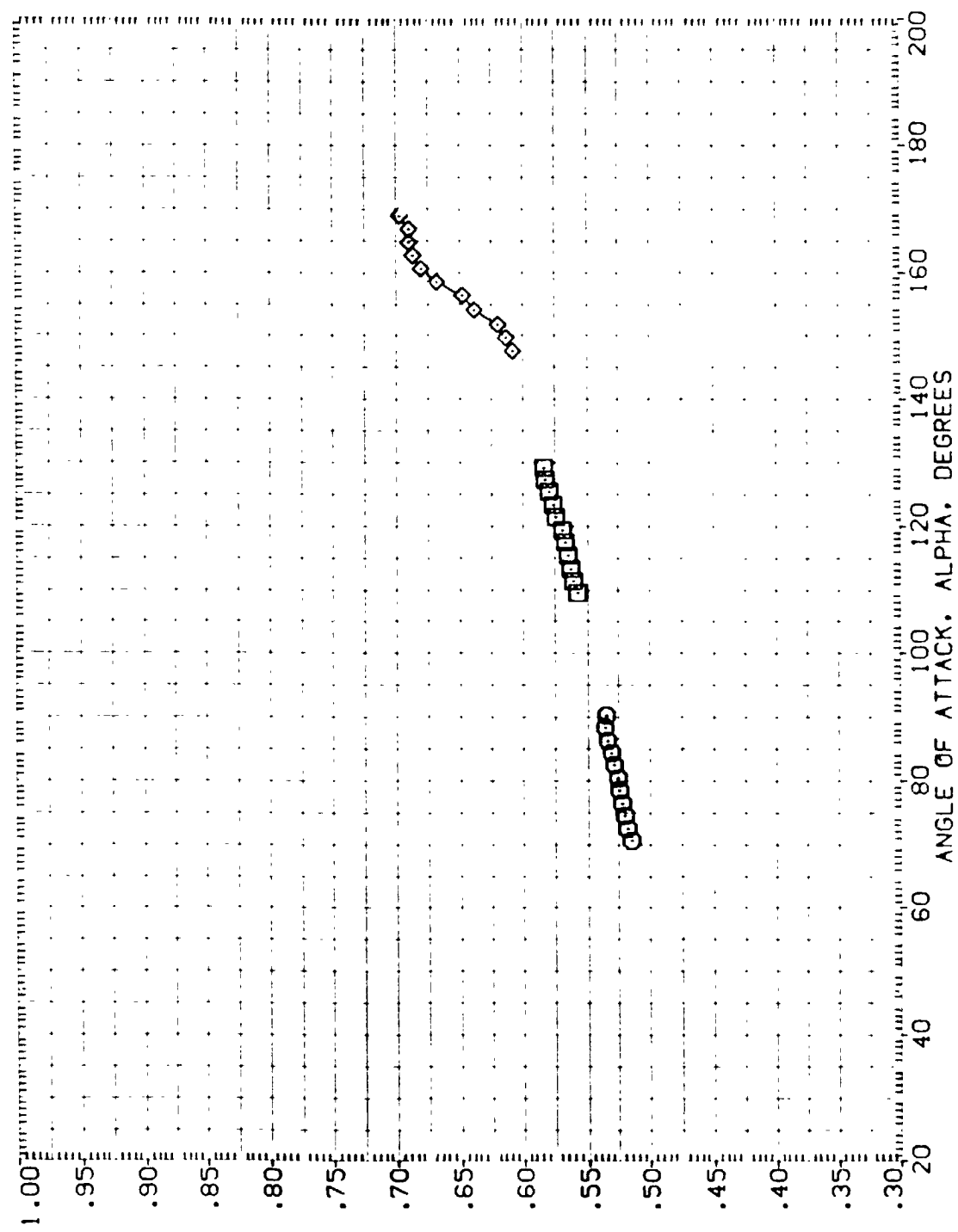


FIGURE 26. STATIC STABILITY CHARACTER OF SRB W/ALL PROTUBERANCES (PHI = 315)

(D)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH072)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	SREF .5030 SQ. IN.
(AIH073)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	LREF .8000 IN.
(AIH074)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	315.000	BREF .8000 IN.
			XMREF 5.7210 IN. XS
			YMREF .0000 IN. YS
			ZMREF .0000 IN. ZS
			SCALE .0055

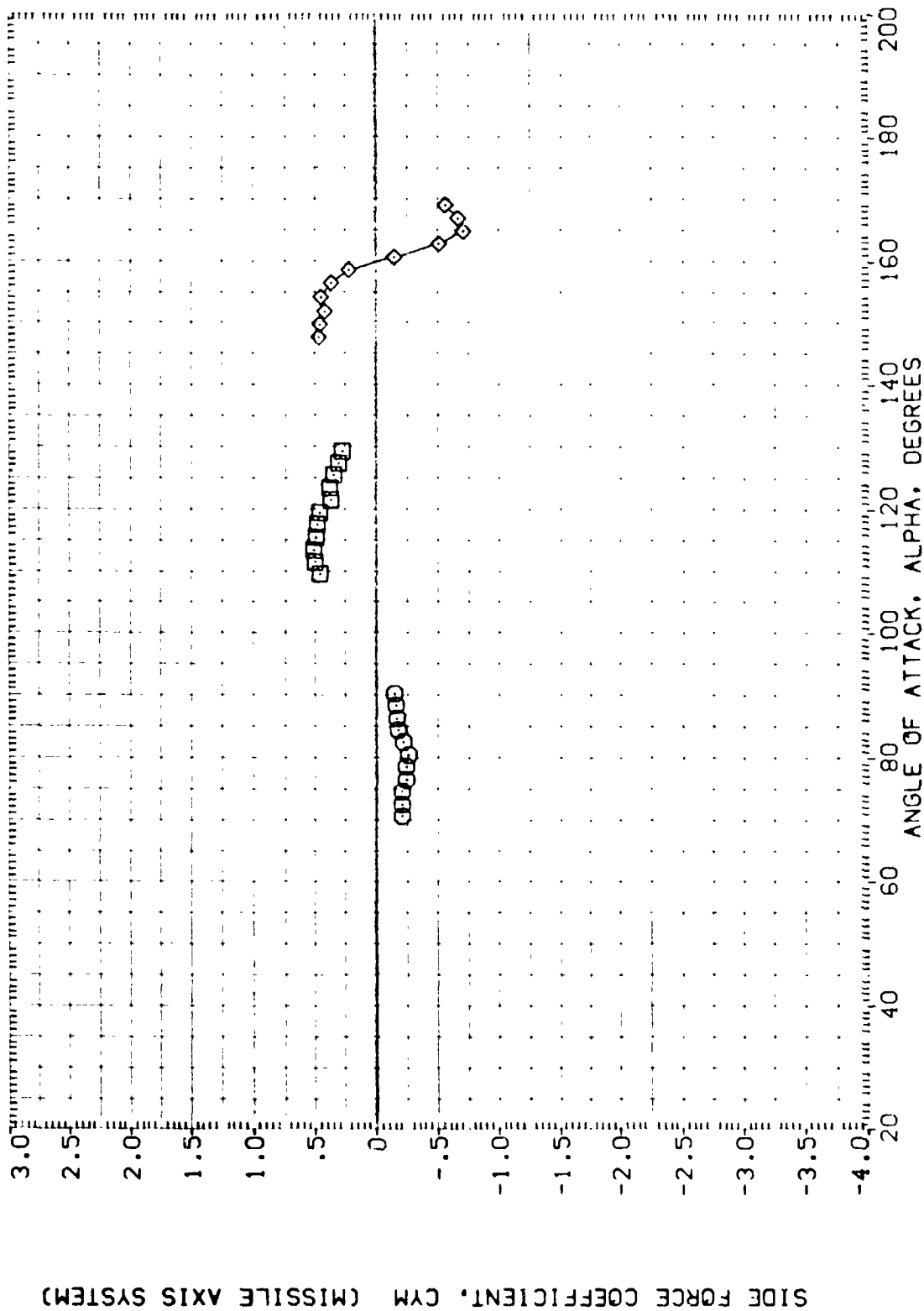


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB WITH ALL PROTUBERANCES (PHI = 315)

(O) MACH = 1.20

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

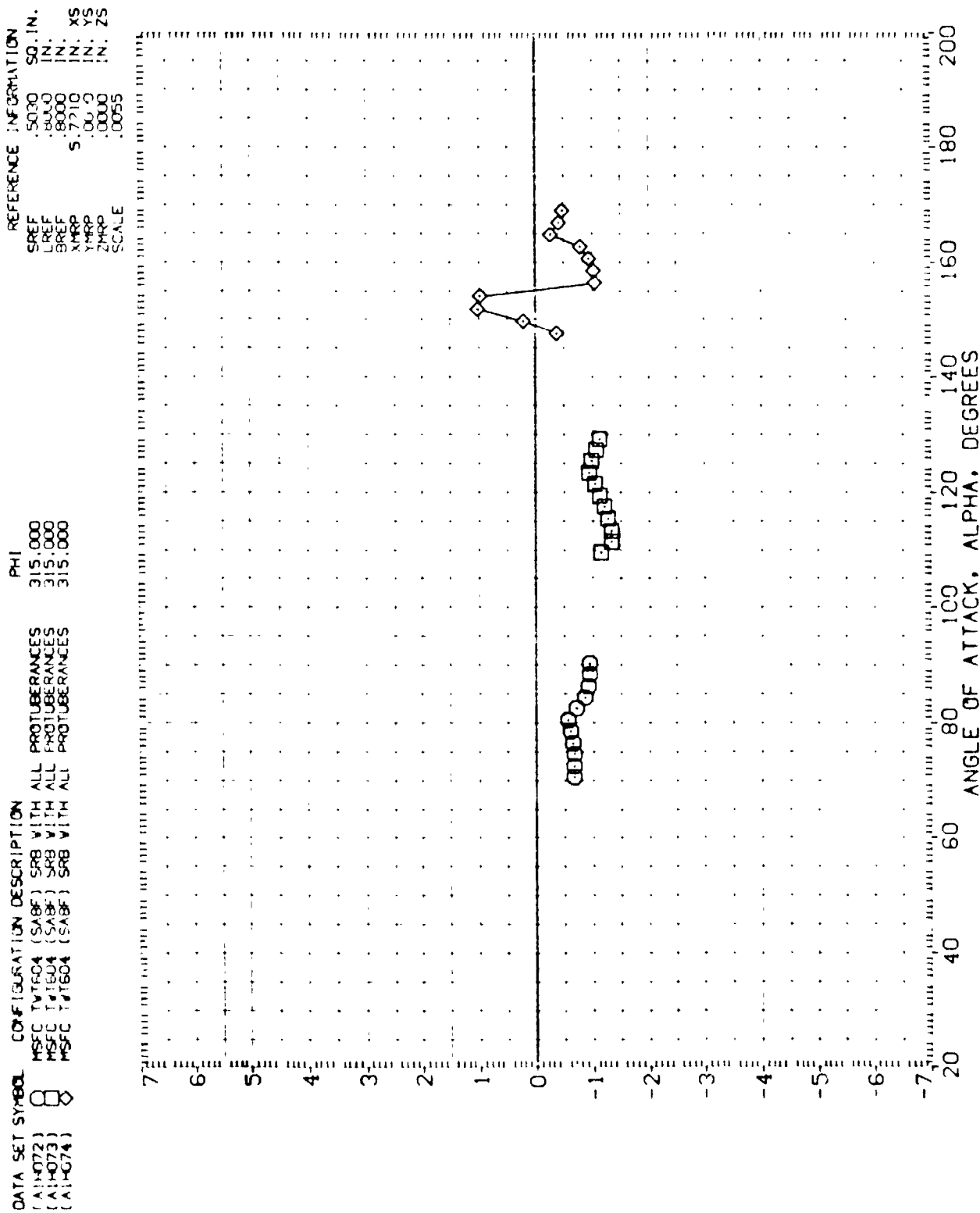


FIGURE 26. STATIC STABILITY CHARACTERISTICS OF SRB W/ALL PROTUBERANCES (PHI = 315)

(C)MACH = 1.20





DA A SET SYMBOL CONFIGURATION DESCRIPTION

DA A SET SYMBOL	CONFIGURATION	DESCRIPTION	RN	PHI	REFERENCE INFORMATION
(B)H004	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.350	.000	SRF .5030
(B)H005	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.350	.000	SRF .5030
(B)H006	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.350	.000	SRF .5030
(B)H007	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H008	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H009	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H010	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H011	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H012	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030
(B)H013	MSFC TAT604 (SABF)	SR8 CLEAN W/ RINGS	.200	.000	SRF .5030

SCALE

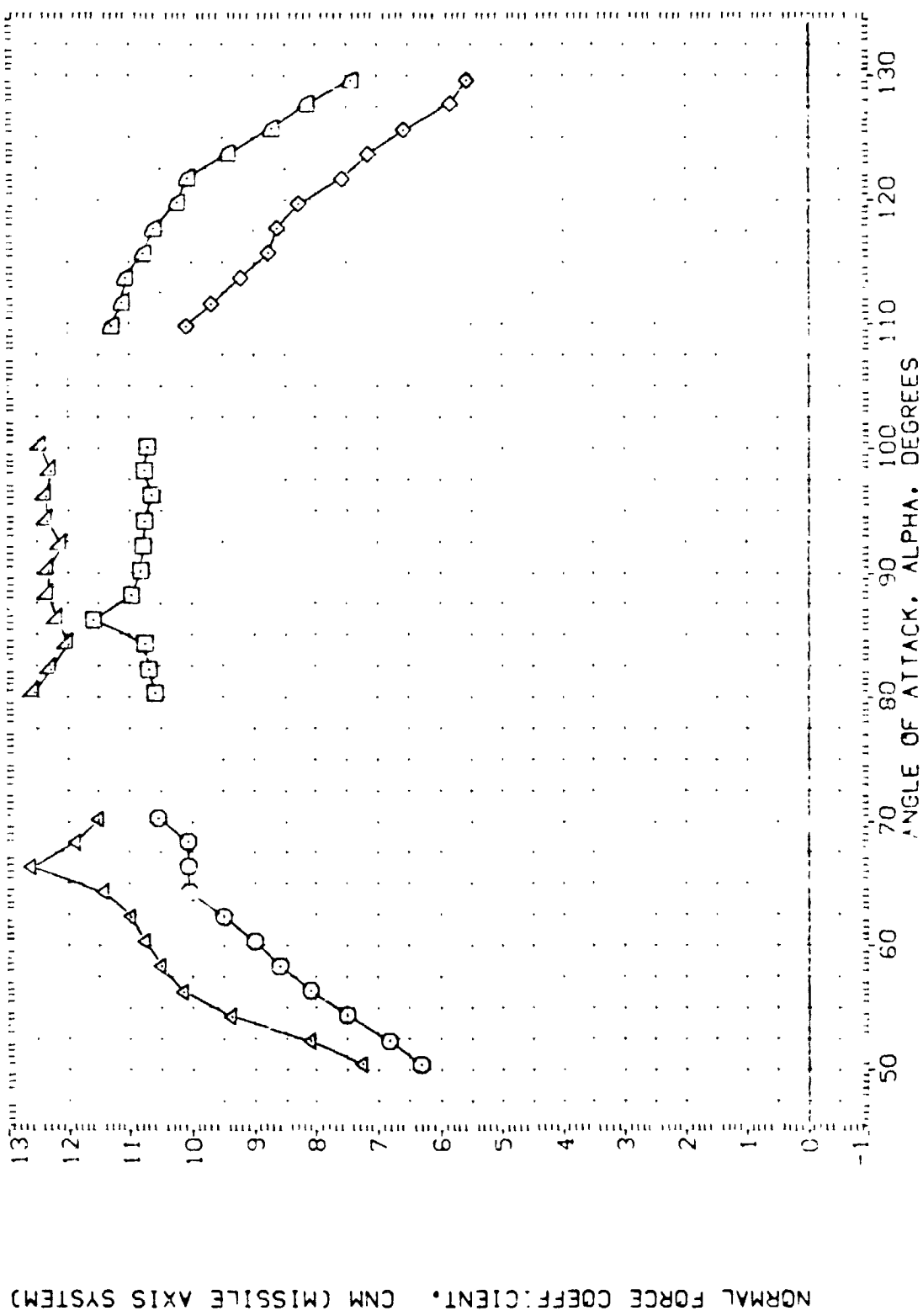


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN	PHI	REFERENCE INFORMATION
(B1H004)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	SREF .50 IN.
(B1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	LREF .8000 IN.
(31H015)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	BREF .8000 IN.
(B1H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	YREF 5.7210 N.
(B1H007)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	YREF .0000 N.
(B1H013)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	ZREF .0000 N.
				SCALE .0055

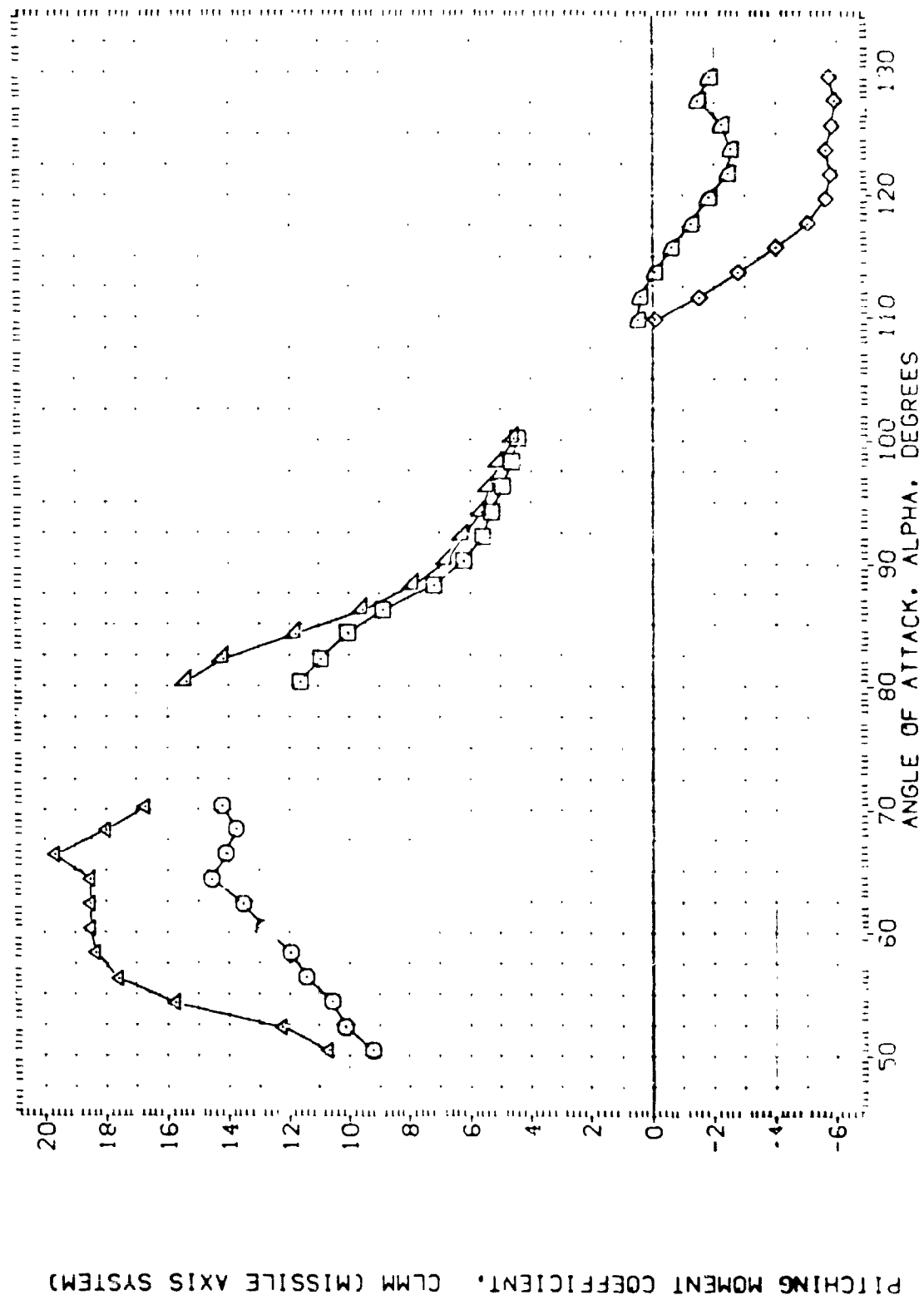


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

(A)MACH = .40

DATA SL / SYMBOL	CONFIGURATION DESCRIPTION	RM	PHI	REFERENCE INFORMATION
(31H004)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.350	.000	SREF 5030 50. IN.
(31H009)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.350	.000	LREF 1000 10. IN.
(31H014)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.350	.000	BREF 7210 72. IN.
(31H002)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.200	.000	AKKO 5 7210 72. IN.
(31H007)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.200	.000	WXP 1000 10. IN.
(31H013)	MFC TV1604 (SABF) SRB CLEAN V/RINGS	.200	.000	SCALE 3055

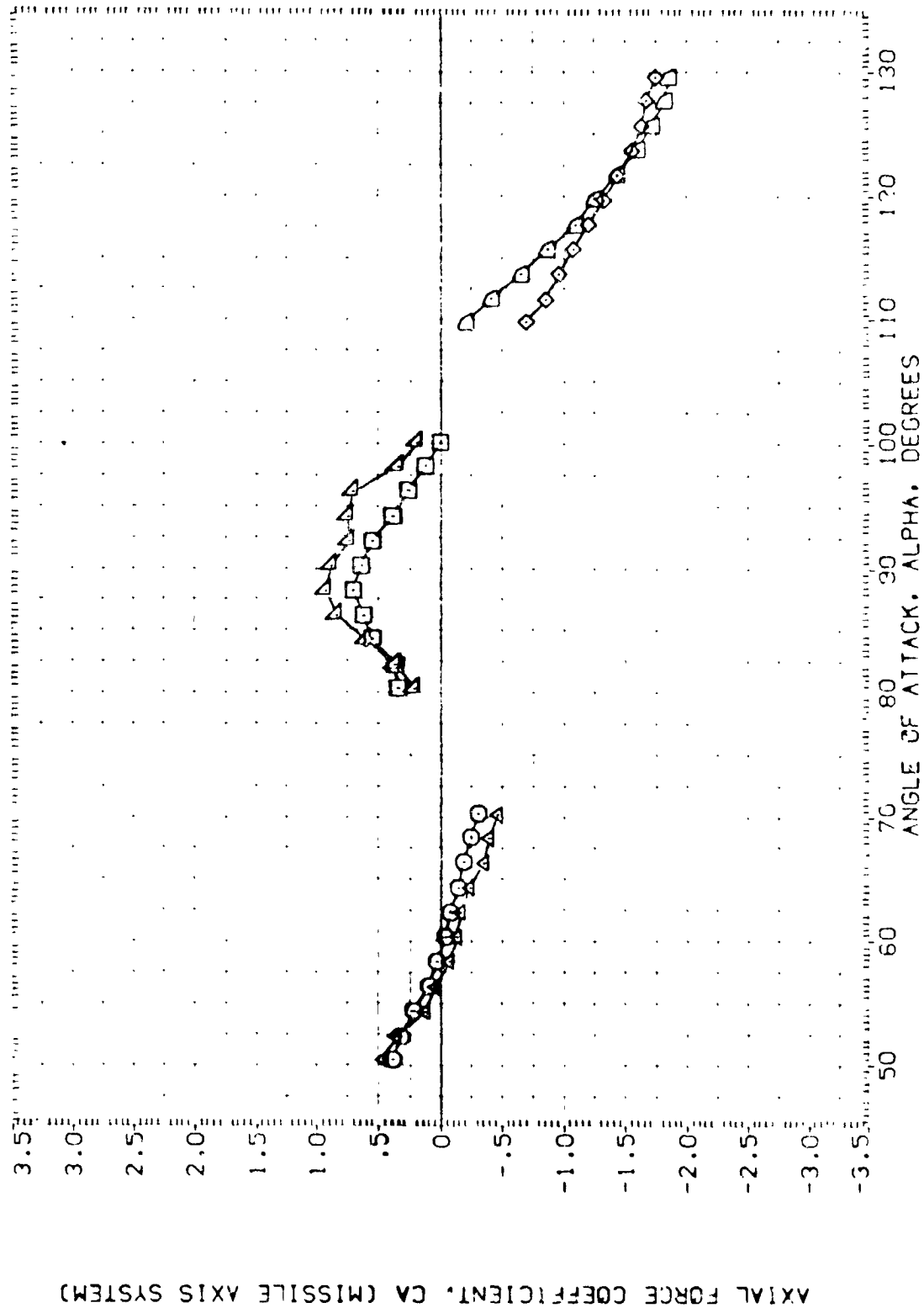


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    KN    PHI    REFERENCE INFORMATION

(B1H004)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	SREF .5030 IN.
(B1H008)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	LREF .8000 IN.
(B1H015)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.350	.000	BREF .8000 IN.
(B1H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	YMRP 5.7210 IN. XS
(B1H007)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	ZMRP .0000 IN. YS
(B1H013)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.200	.000	SCALE .0055 IN. ZS

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

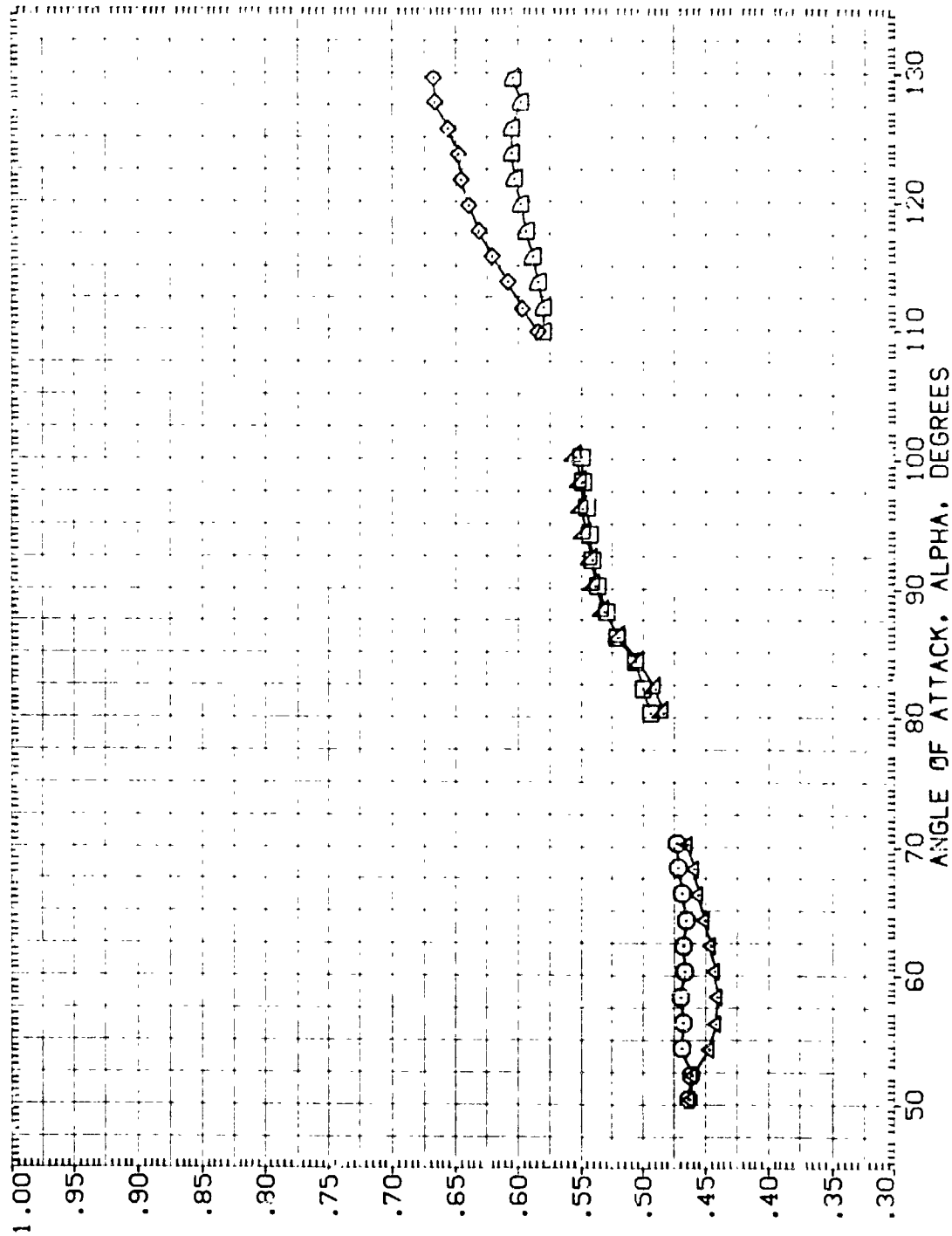


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

(A)MACH = .40

11-11-64  
 11-11-64  
 11-11-64

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN	PHI	REFERENCE INFORMATION
(914004)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.350	.000	SREF .5030 SQ. IN.
(814008)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.350	.000	LREF .8400 IN.
(814015)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.350	.000	BREF .8400 IN.
(814005)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.200	.000	YREF 5.7210 IN. XS
(814007)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.200	.000	YREF .0000 IN. YS
(814013)	MSFC TV1604 (SABF) SRB CLEAN W/RINGS	.200	.000	ZREF .0000 IN. ZS
				SCALE .0055

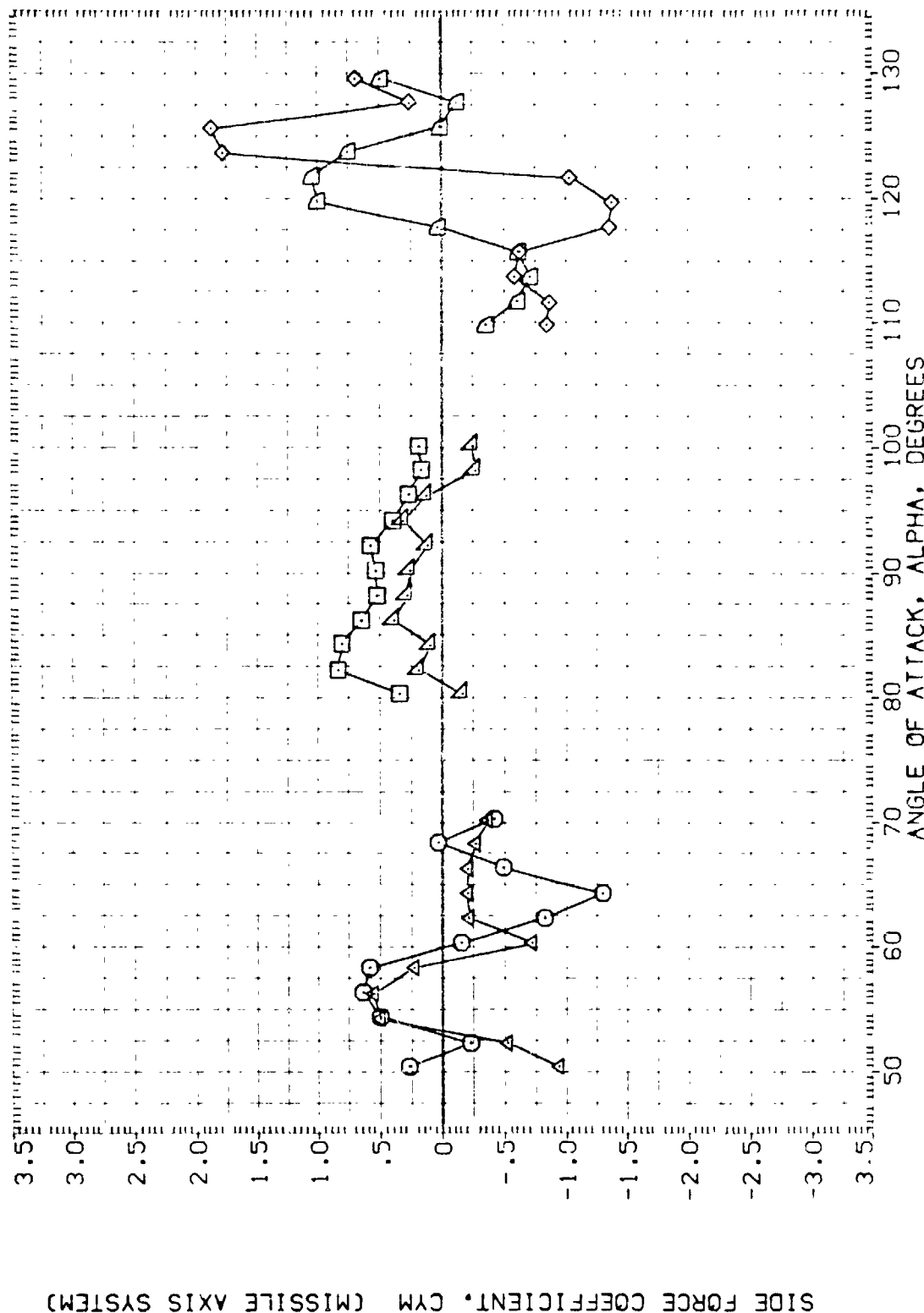


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

CAS/MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN	PHI	REFERENCE INFORMATION
(B11H004)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.350	.000	SREF .50 X0
(B11H006)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.350	.000	LREF .90 X0
(B11H015)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.350	.000	BREF .80 X0
(B11H005)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.200	.000	XMRF 5.72 X0
(B11H007)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.200	.000	YMRF .00 X0
(B11H013)	MSFC TV1604 (SABF) SRB CLEAN V/R1:53	.200	.000	ZMRF .00 X0
				SCALE .0095

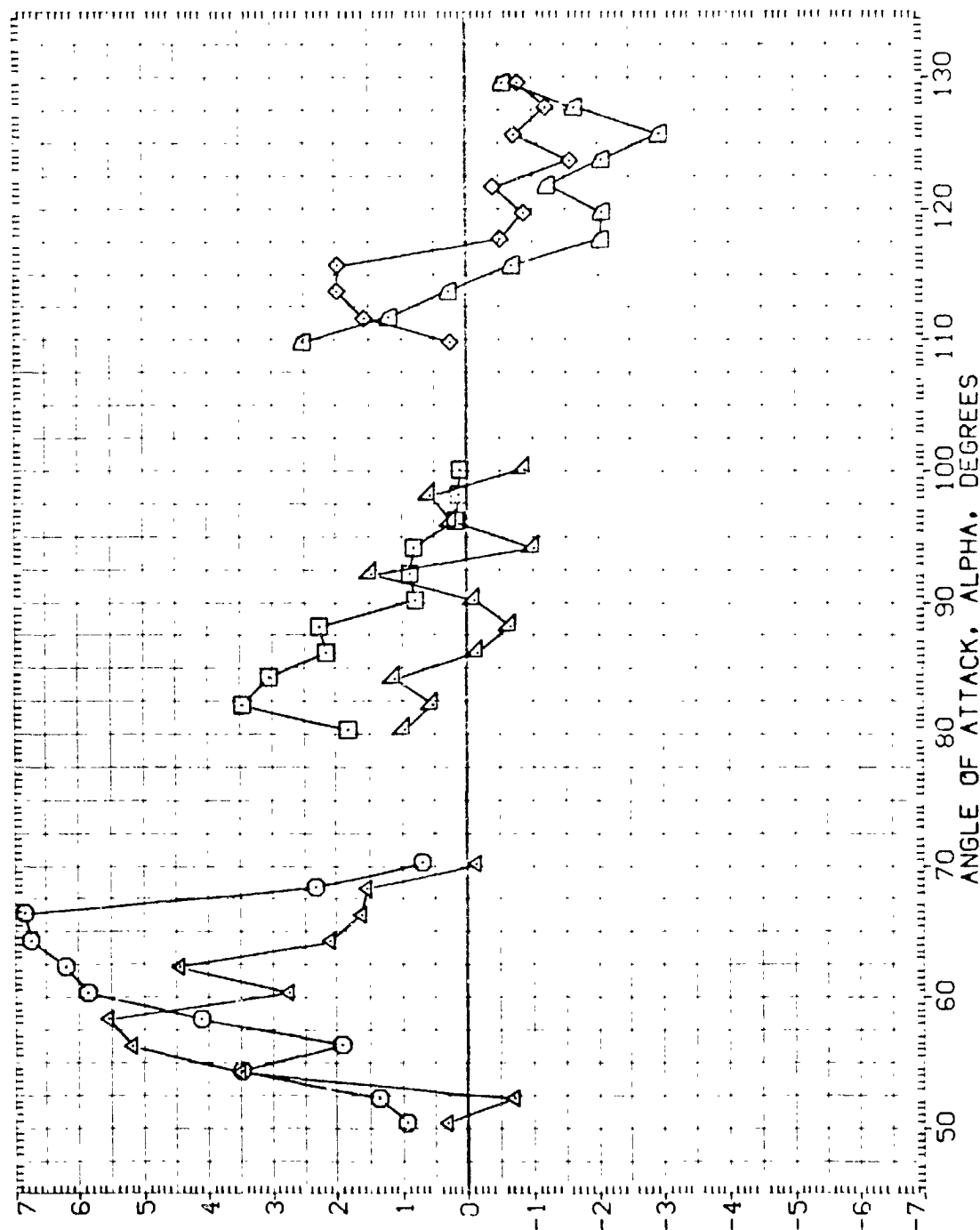


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS

(A)MACH = .40

DATA SET SYMBOL      CONFIGURATION (DESCRIPTION)      RN      PHI      REFERENCE INFORMATION

(81H004)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.350	.000	SREF	50.00	IN.
(81H005)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.350	.000	LREF	60.00	IN.
(81H006)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.350	.000	BREF	70.00	IN.
(81H007)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.200	.000	XMRP	5.7210	IN.
(81H008)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.200	.000	YMRP	.0000	IN.
(81H009)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.200	.000	ZMRP	.0000	IN.
(81H010)	MFC TWTB04 (SA3F) SFB CLEAN V/RINGS	.200	.000	SCALE	.0005	

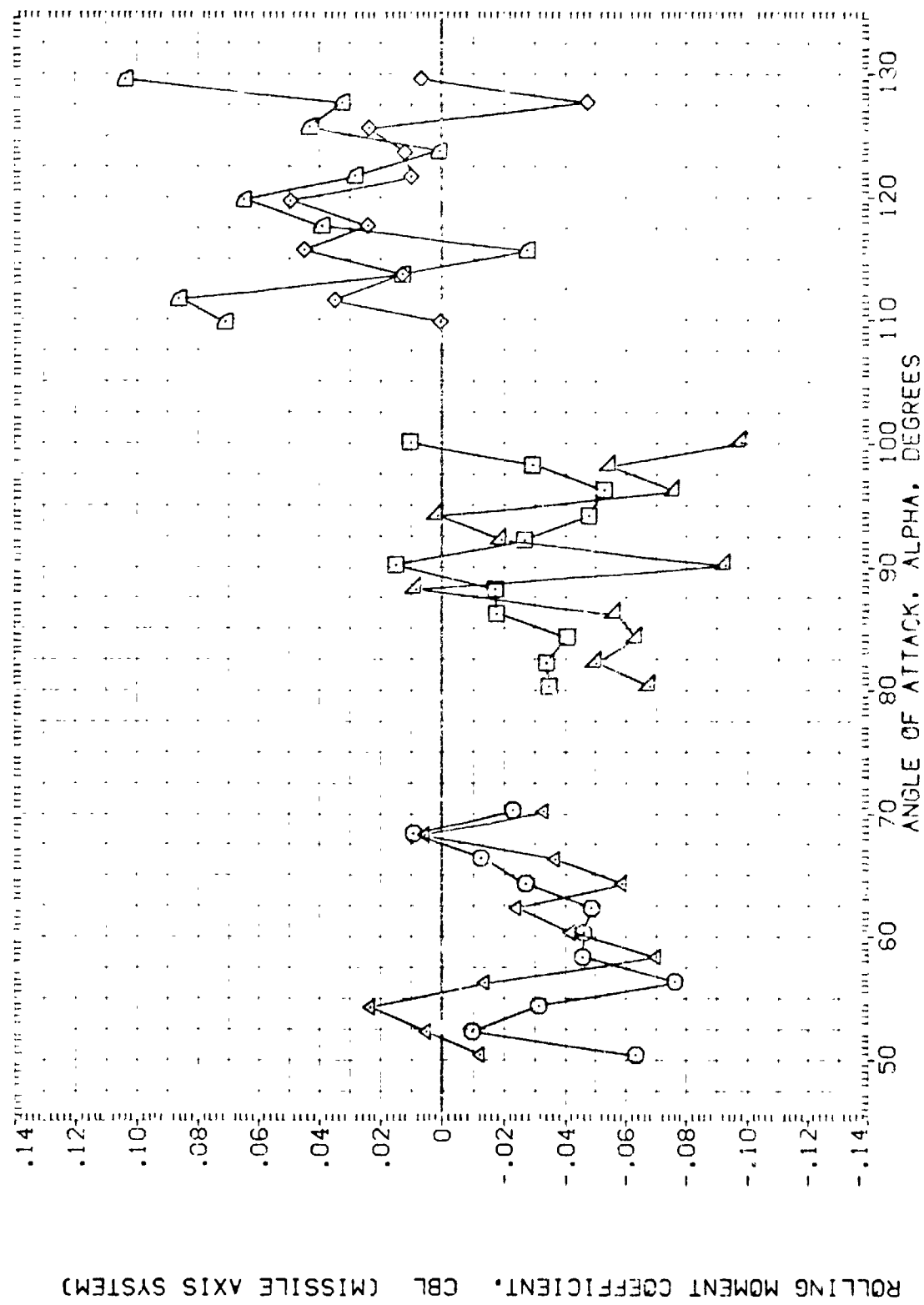


FIGURE 27. EFFECT OF REYNOLDS NUMBER ON STATIC STABILITY CHARACTERISTICS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H020)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/D N.CAP	.000	BREF .8000 IN.
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/D N.CAP	.000	XMRF 5.7210 IN. XS
			YMRF .0000 IN. YS
			ZMRF .0000 IN. ZS
			SCALE .0055

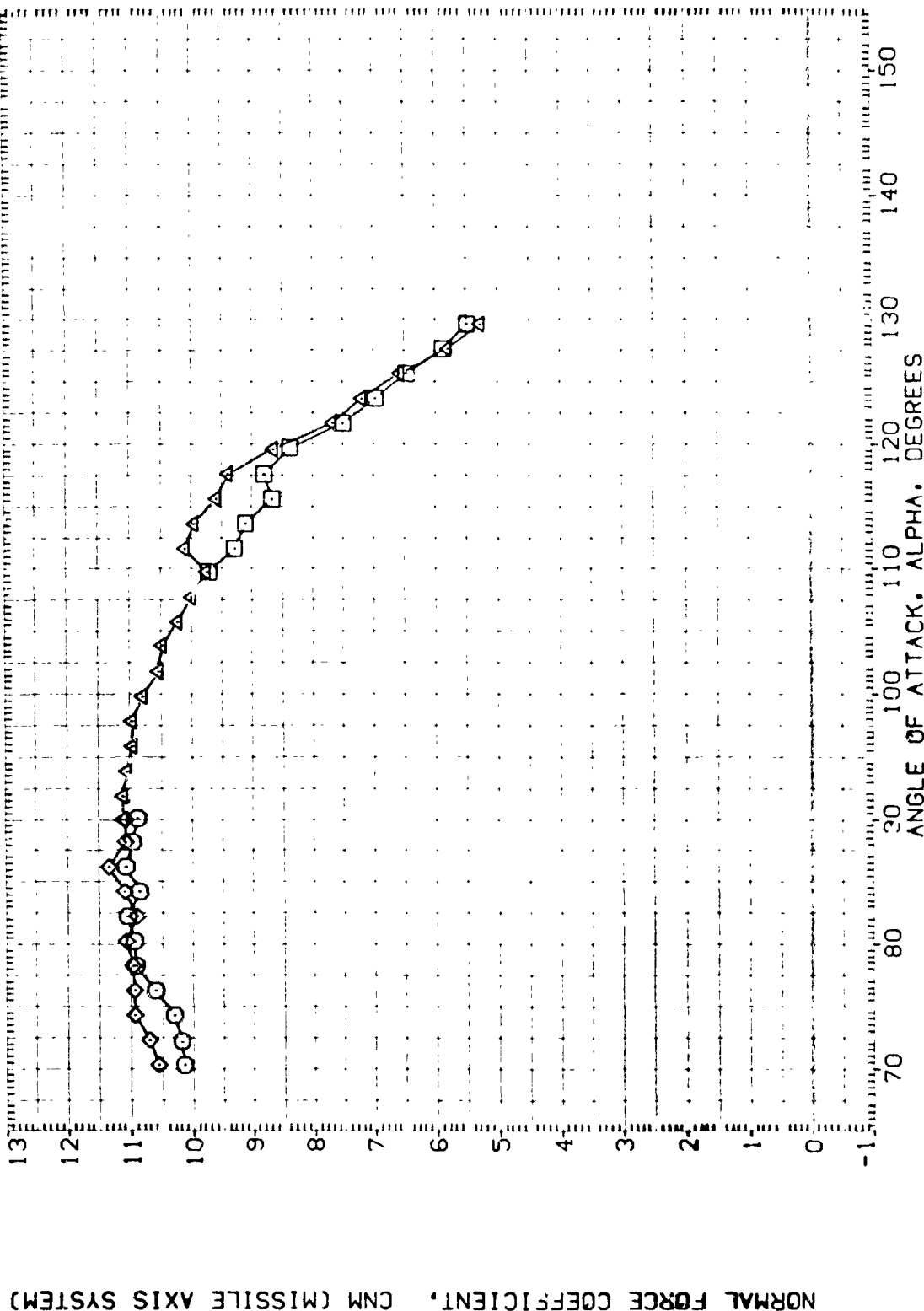


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50 IN.
(A1H001)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H020)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	BREF .8000 IN.
(A1H002)	MSFC TV1604 (SABF) SRB CLEAN V/RINGS	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

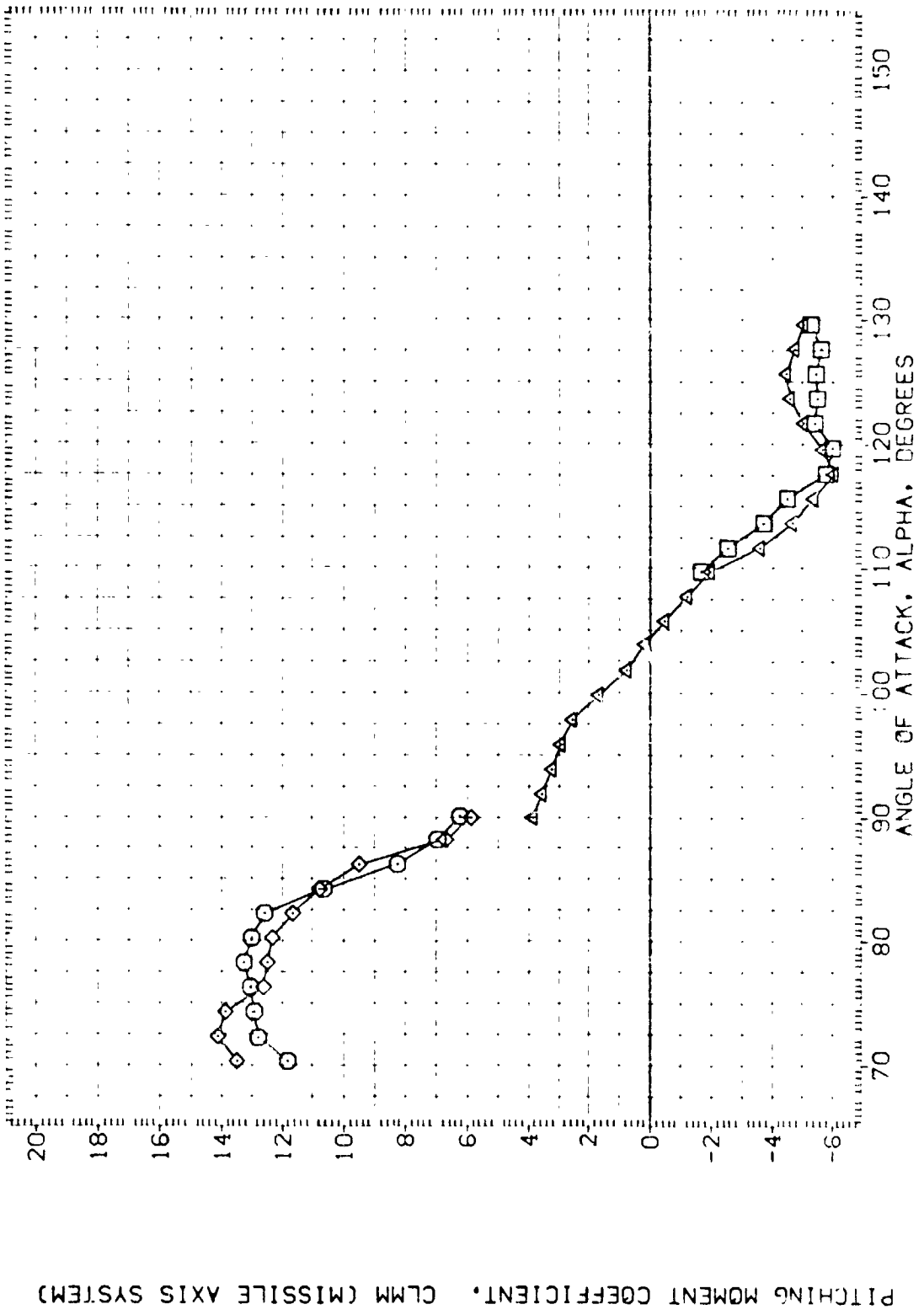


FIGURE 78. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H006)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .8000 IN.
(A1H020)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	BREF .5000 IN.
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

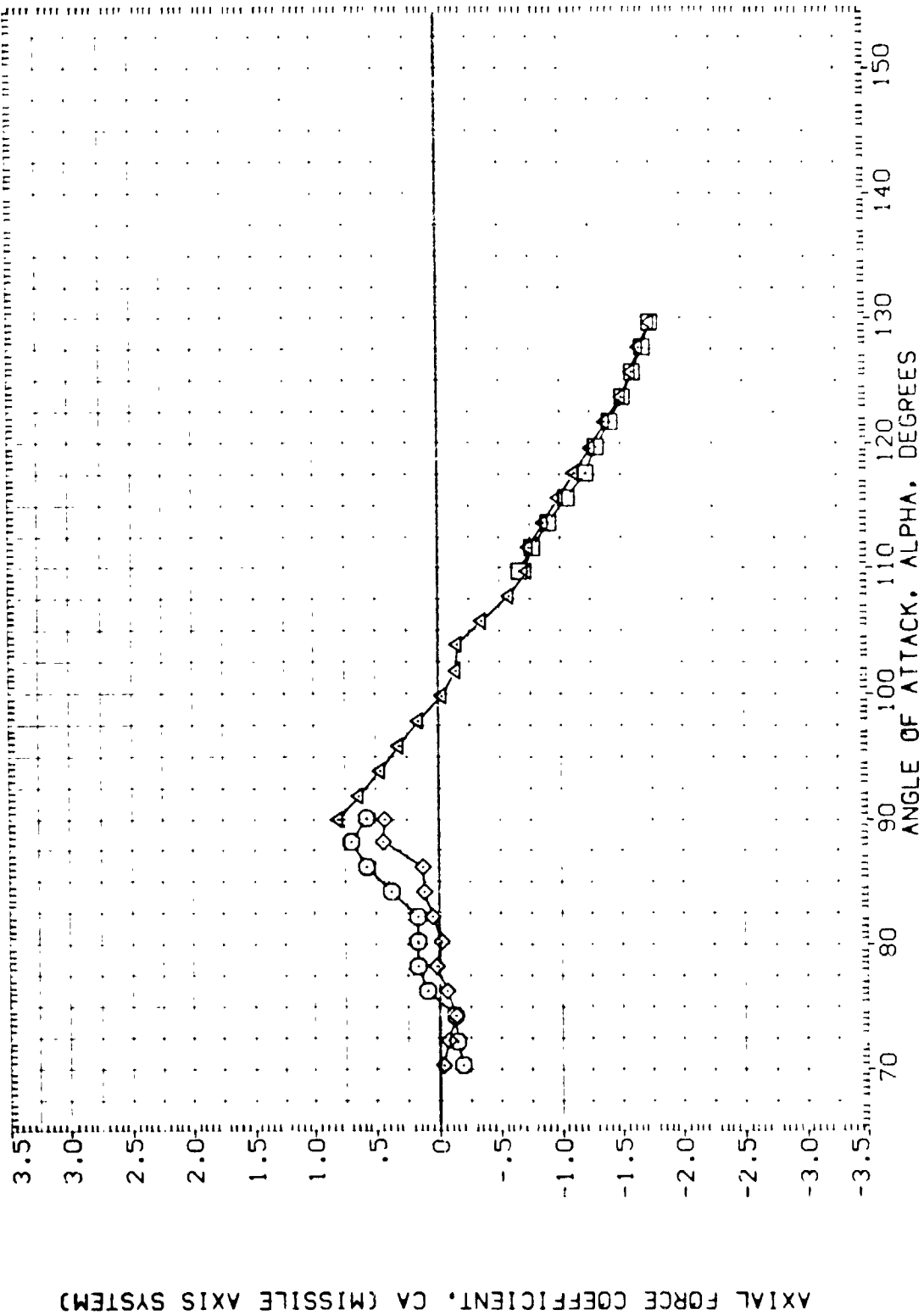


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

(A)MACH = .40

10-10-68  
10-10-68  
10-10-68

DATA SET SYMBOL  
(A1H006)  
(A1H001)  
(A1H020)  
(A1H002)

CONFIGURATION DESCRIPTION  
MSFC TVT604 (SARF) SRB CLEAN V/RINGS  
MSFC TVT604 (SARF) SRB CLEAN V/RINGS V/O N.CAP  
MSFC TVT604 (SARF) SRB CLEAN V/RINGS V/O N.CAP  
MSFC TVT604 (SARF) SRB CLEAN V/RINGS V/O N.CAP

PHI  
.000  
.000  
.000

REFERENCE INFORMATION  
SREF .5020 SQ. IN.  
LREF .8000 IN.  
BREF .8000 IN.  
AMPB 5.7210 IN. XS  
THRP .0000 IN. YS  
ZHRP .0000 IN. ZS  
SCALE .0005

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

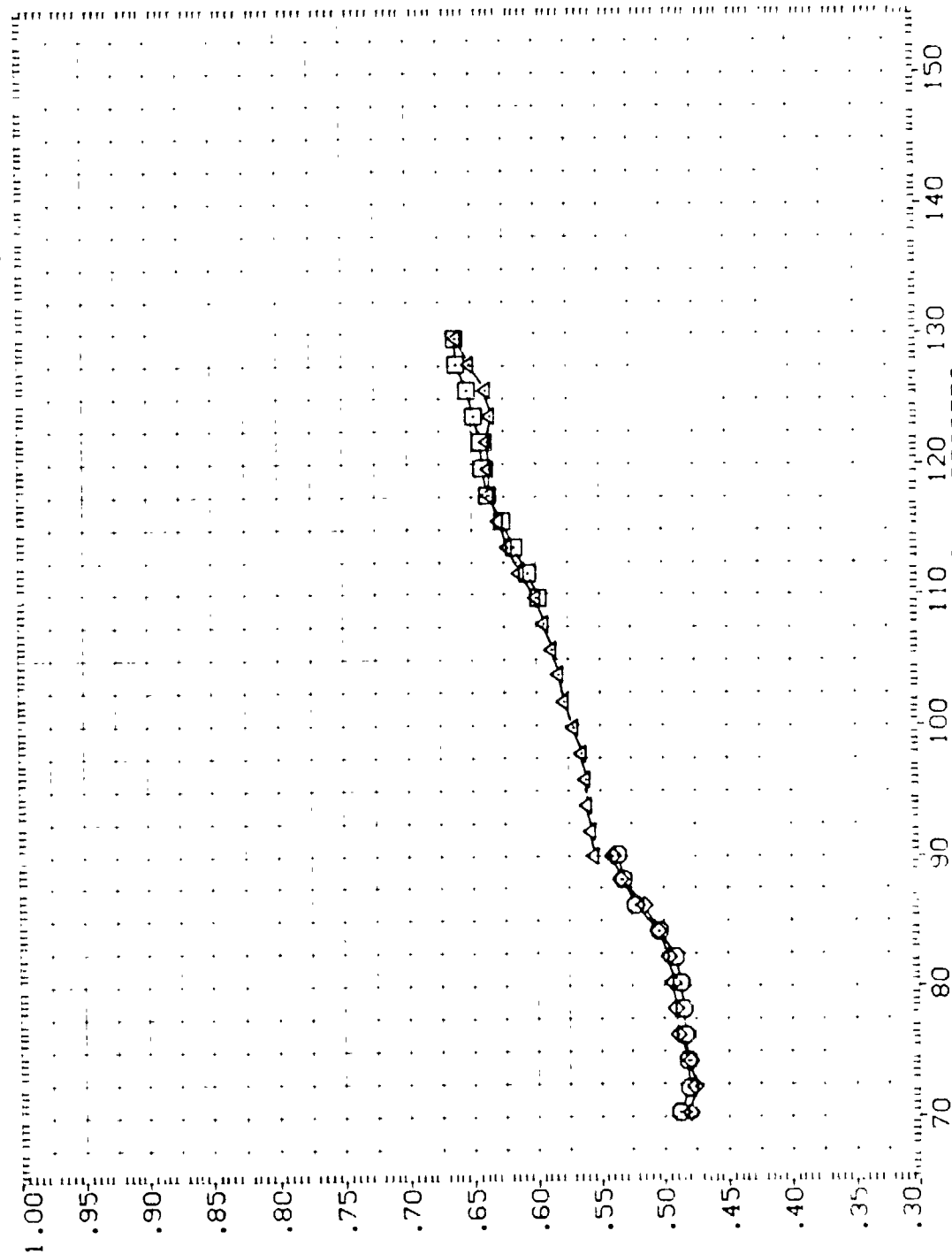


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

(A1H006) 10-10-68

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 SQ.IN.
(A1H001)	DATA NOT AVAILABLE	.000	LREF .8000 IN.
(A1H020)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/O N.CAP	.000	BREF .8000 IN.
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/O N.CAP	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .00553

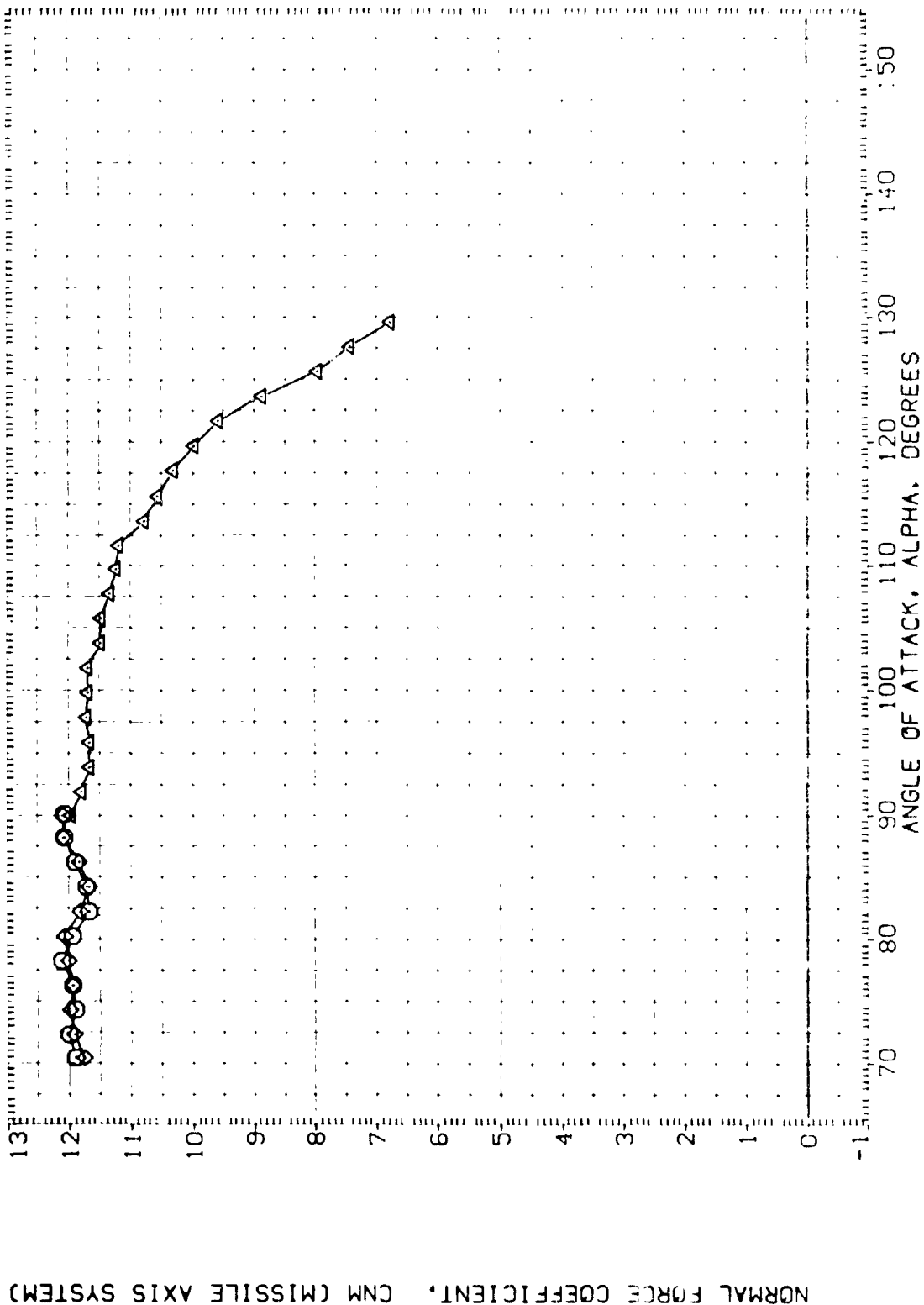


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

(B)MACH = .50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H006)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS	.000	SRF .5030 SQ. IN.
(A)H001)	DATA NOT AVAILABLE	.000	(REF) .0000 IN.
(A)H020)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS V/O N.CAP	.000	BRF .8000 IN.
(A)H002)	MSFC TVT604 (SABF) SR8 CLEAN V/RINGS V/3 N.CAP	.000	XMRP 5.72 0 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0005

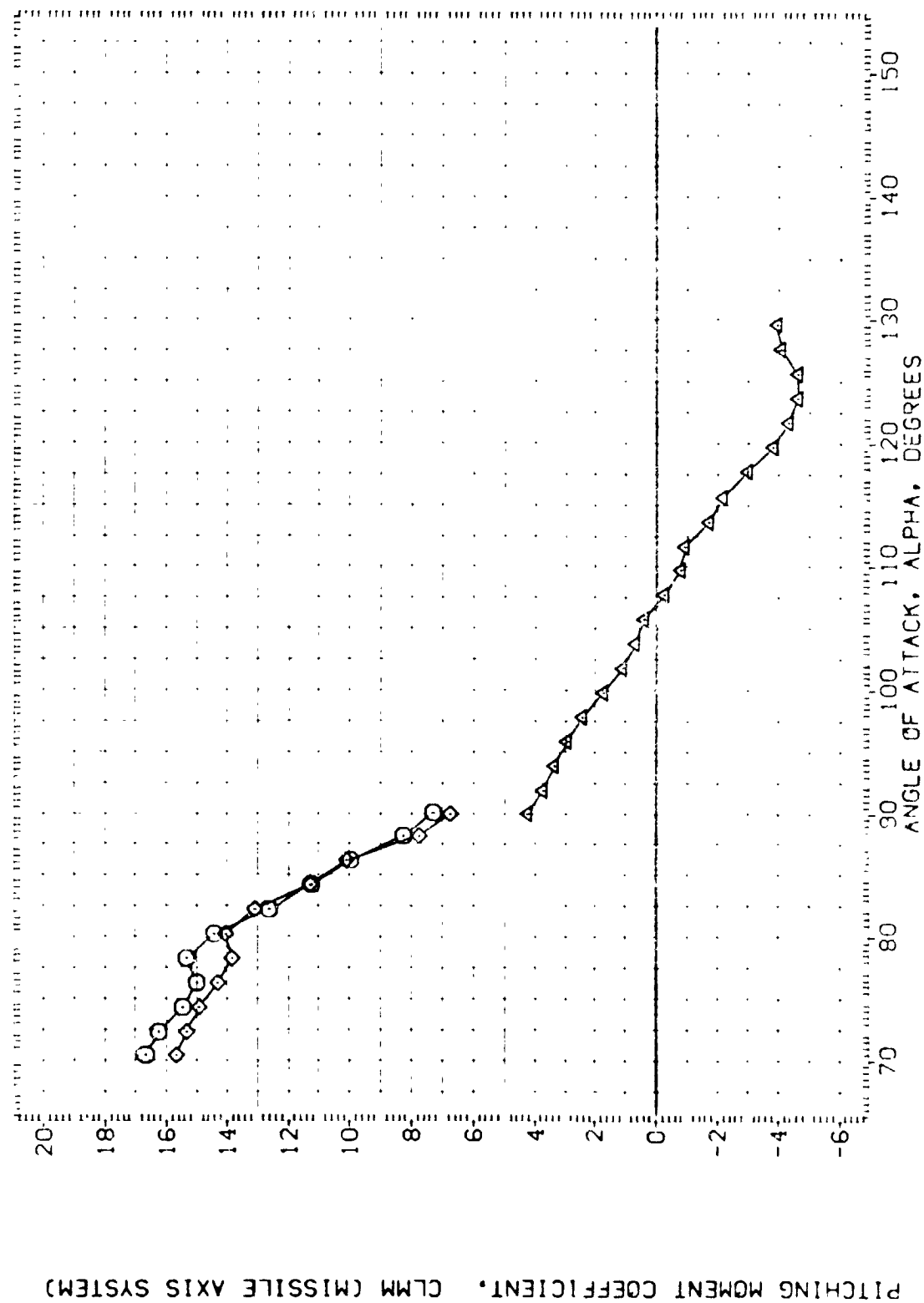


FIGURE 28. EFFECT OF NOSE CAP ON SR8 STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PH1

(AIH006)    MSFC TVT604 (SABF) SRB CLEAN V/RINGS    .000

(AIH001)    DATA NOT AVAILABLE    .000

(AIH020)    MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/O N,CAP    .000

(AIH002)    MSFC TVT604 (SABF) SRB CLEAN V/RINGS V/O N,CAP    .000

REFERENCE INFORMATION

SREF    .030    IN.

LREF    .8300    IN.

BREF    .8300    IN.

XMPP    5.7210    IN.

YMPP    .0000    IN.

ZMPP    .0000    IN.

SCALE    .0055

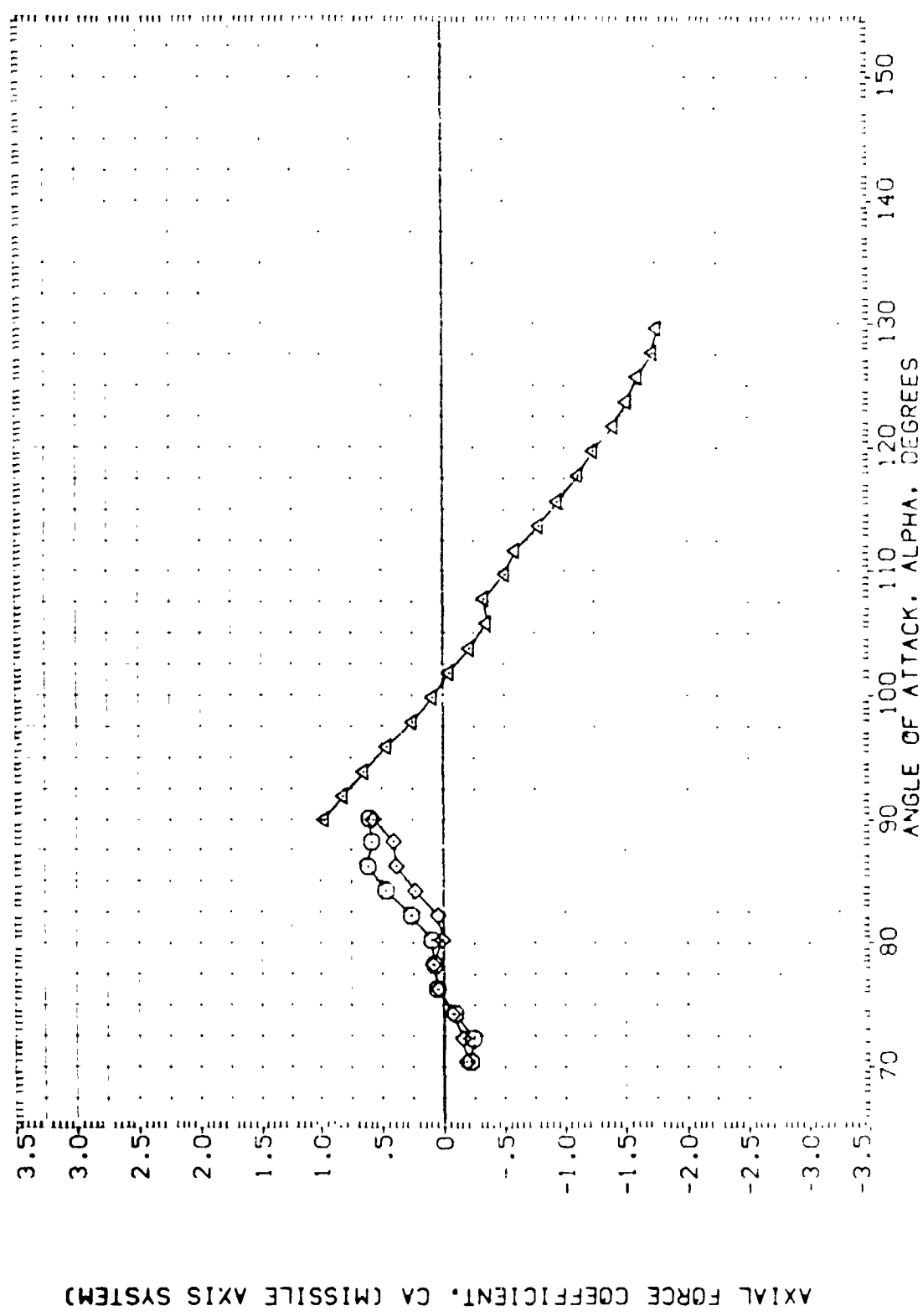


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL CONFIGURATION DESCRIPTION PHI  
 (A1H006) MSFC TVT04 (SABF) SR8 CLEAN V/RINGS .000  
 (A1H001) DATA NOT AVAILABLE .000  
 (A1H020) MSFC TVT04 (SABF) SR8 CLEAN V/RINGS V/O N.CAP .000  
 (A1H002) MSFC TVT04 (SABF) SR8 CLEAN V/RINGS V/O N.CAP .000

REFERENCE INFORMATION  
 SREF 24.70 SQ. IN.  
 LREF 1.800 IN.  
 BREF 5.7210 IN. XS  
 XMRP .0000 IN. YS  
 YMRP .0000 IN. ZS  
 SCALE 0.55

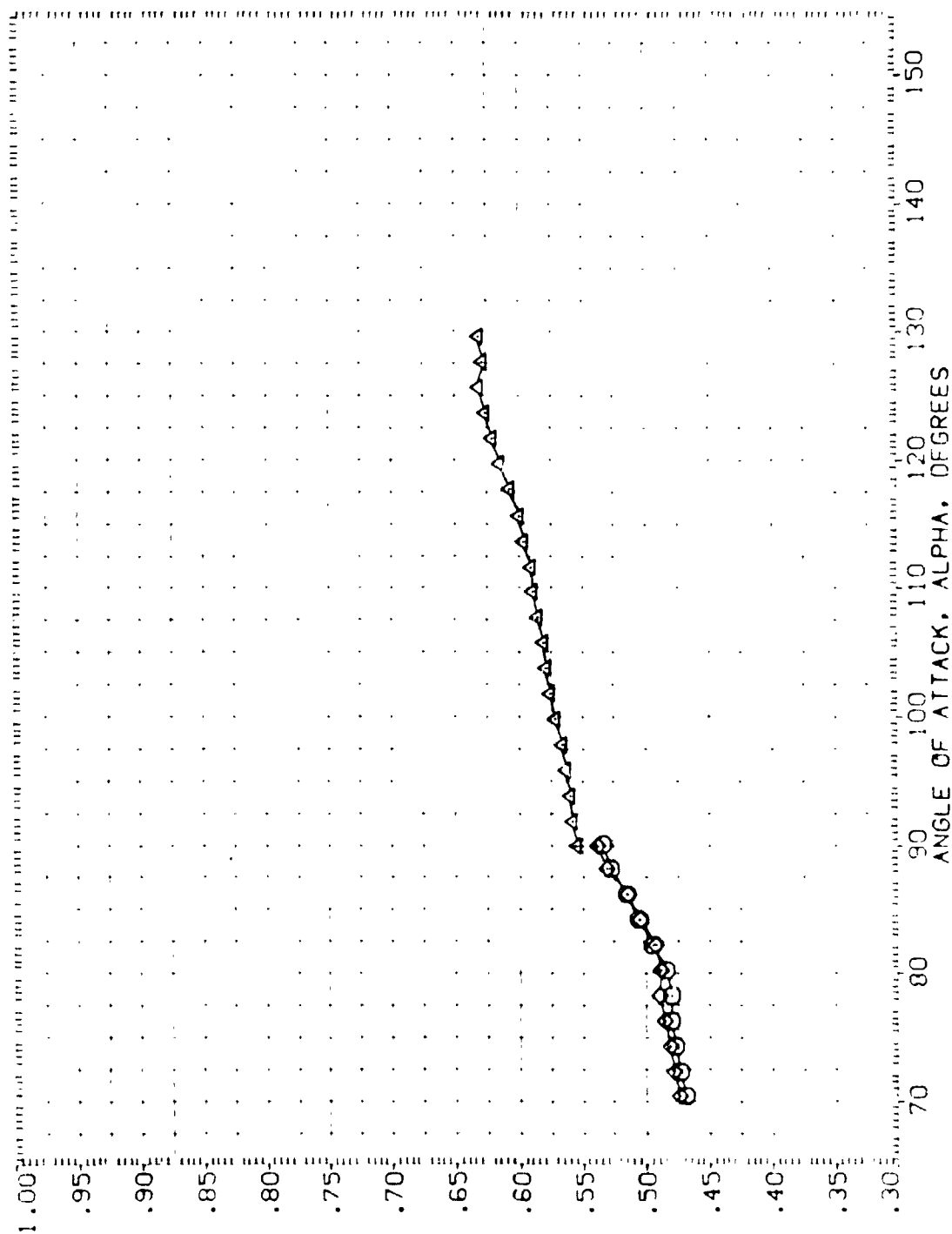


FIGURE 28. EFFECT OF NOSE CAP ON SR8 STATIC STABILITY CHARACTERISTICS



REFERENCE INFORMATION

SREF	.5000	IN.
LREF	.0000	IN.
BREF	.0000	IN.
XMPP	5.0000	IN.
YMPP	.0000	IN.
ZMPP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000
.000

DATA SET SYMBOL

(A1H006)	MSFC TVT604 (SAB)	SRB CLEAN	V/RINGS
(A1H001)	MSFC TVT604 (CAB)	SRB CLEAN	V/RINGS
(A1H020)	MSFC TVT604 (SAB)	SRB CLEAN	V/RINGS
(A1H002)	MSFC TVT604 (SAB)	SRB CLEAN	V/RINGS

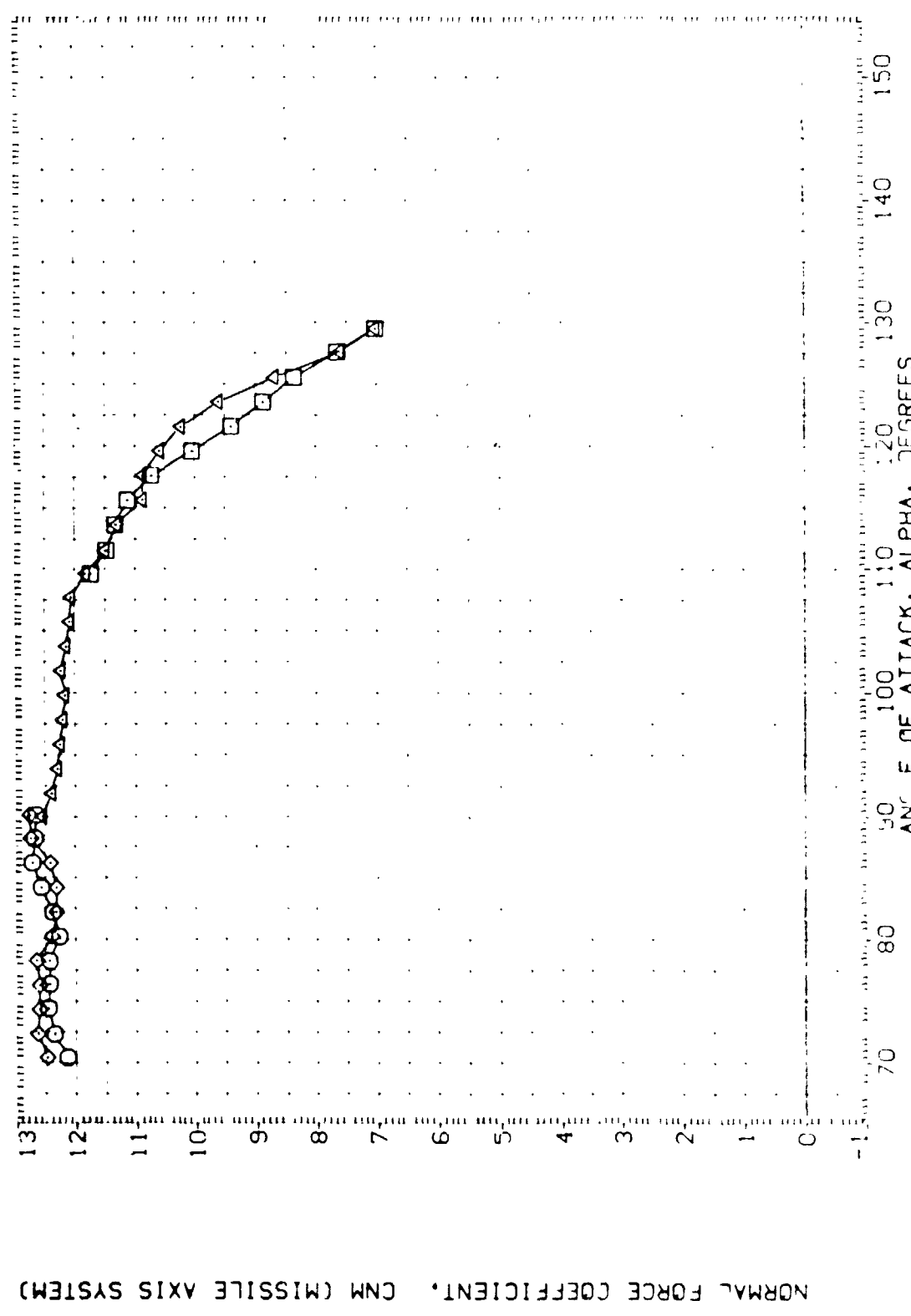


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A) H00.1	MFC 1A7604 (SABF) SRB CLEAN V/RINGS	.000	SREF 1A7604 SQ. IN.
(A) H00.1	MFC 1A7604 (SABF) SRB CLEAN V/RINGS	.000	LREF 1A7604 IN.
(A) H00.1	MFC 1A7604 (SABF) SRB CLEAN V/RINGS	.000	YREF 1A7604 IN.
(A) H00.1	MFC 1A7604 (SABF) SRB CLEAN V/RINGS	.000	ZREF 1A7604 IN.
(A) H00.1	MFC 1A7604 (SABF) SRB CLEAN V/RINGS	.000	SCALE .0005

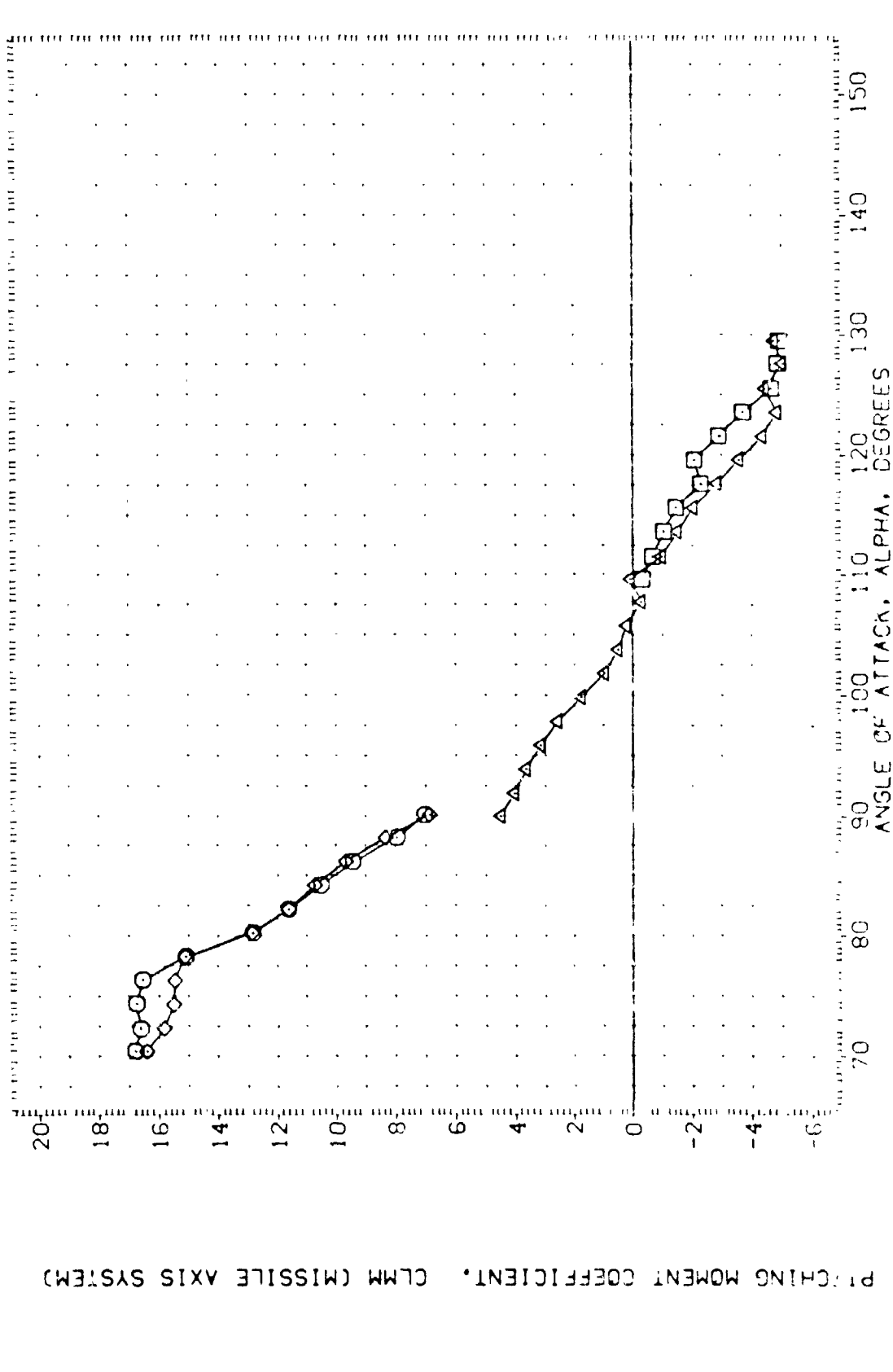


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS



REFERENCE INFORMATION

SREF	.5000	IN.
-REF	.0000	IN.
EREF	.0000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0035	

PHI

.000
.000
.000
.000

CONFIGURATION DESCRIPTION

MSFC	YATE04	(SABF)	SRB	CLEAN	V/RINGS
MSFC	YATE04	(SABF)	SRB	CLEAN	V/RINGS
MSFC	YATE04	(SABF)	SRB	CLEAN	V/RINGS
MSFC	YATE04	(SABF)	SRB	CLEAN	V/RINGS

DATA SET SYMBOL

(A1H006)	□
(A1H001)	□
(A1H020)	□
(A1H002)	□

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

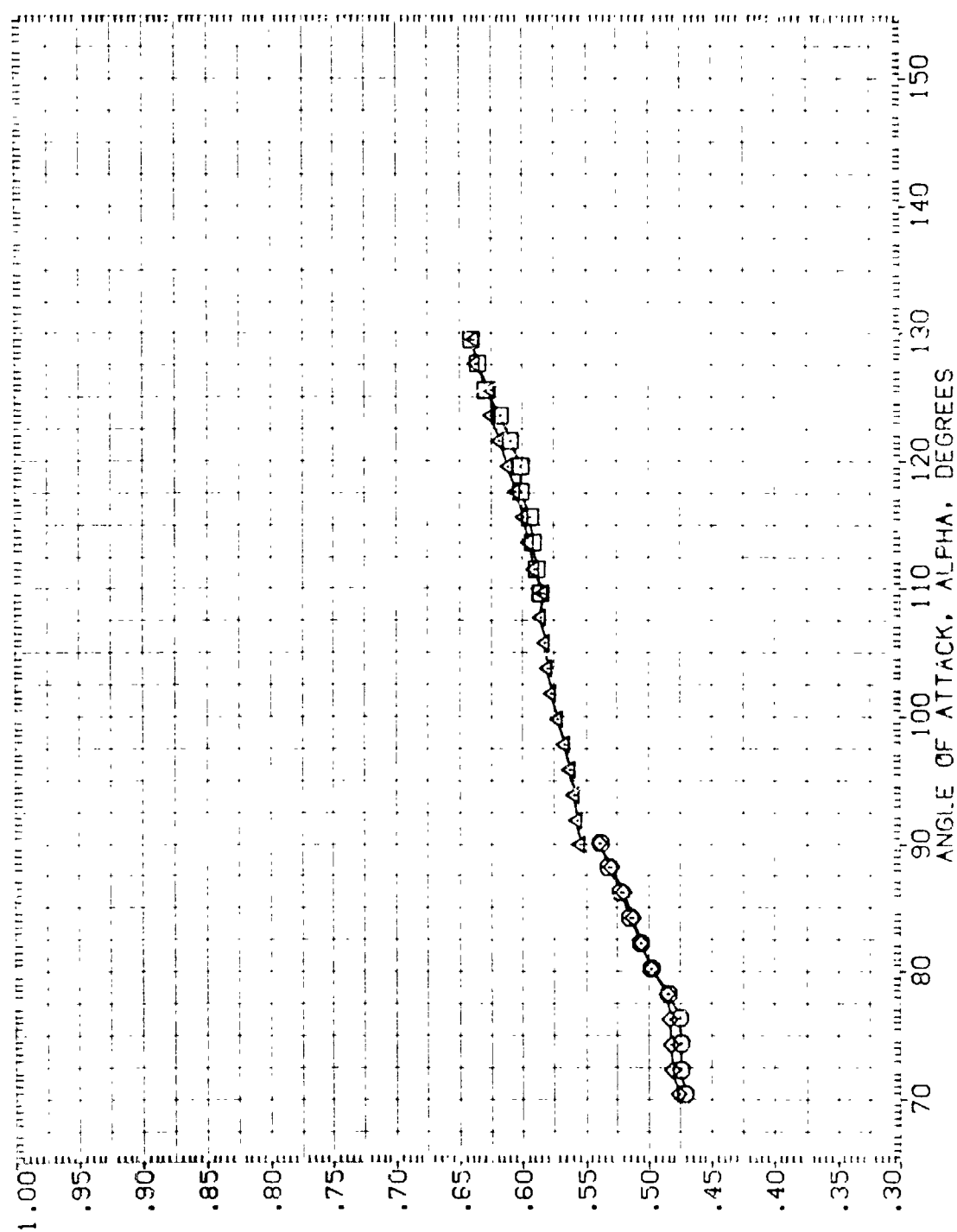


FIGURE 28. EFFECT OF NOSE CAP ON SRB STATIC STABILITY CHARACTERISTICS

(C)MACH = .60

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .50 IN.  
 BREF .8000 IN.  
 XREF 5.7210 IN.  
 YREF .0000 IN.  
 ZREF .0000 IN.  
 SCALE .0055

NOZZLE  
 .000  
 .000  
 2.500  
 5.000  
 5.000

(NOZ. GIM.)  
 (NOZ. GIM.)  
 (NOZ. GIM.)  
 (NOZ. GIM.)  
 (NOZ. GIM.)

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS  
 MSFC TVT604 (SABF) SRB CLEAN V/RINGS

DATA SET SYMBOL  
 (A1H001)  
 (A1H001)  
 (A1H009)  
 (A1H079)  
 (A1H080)  
 (A1H010)

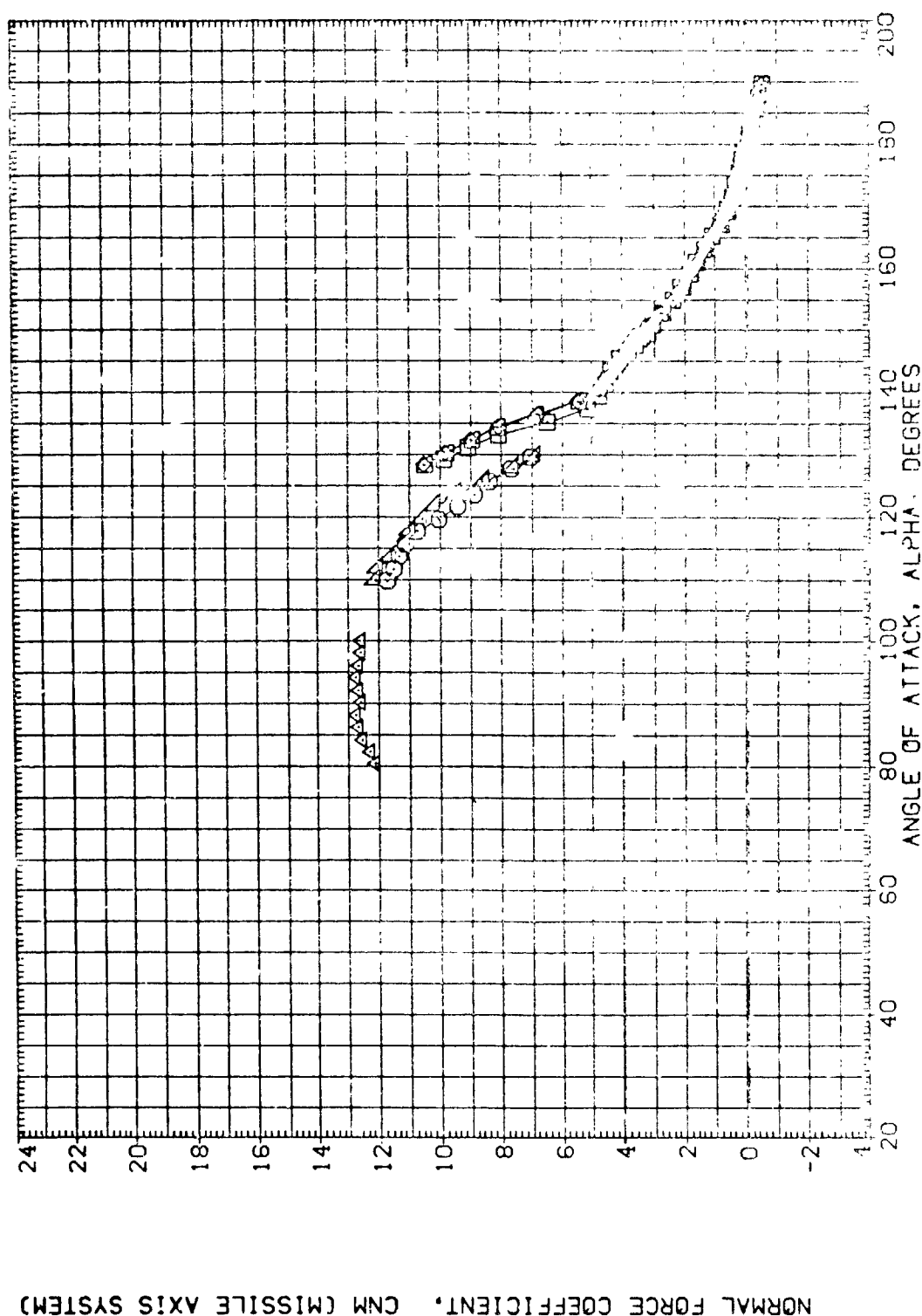


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
 (A)MACH = .60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SRBF .5030 SQ. IN.
(AIH001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LRBF .8000 IN.
(AIH009)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LRBF .8000 IN.
(AIH079)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	2.500	XPBP 5.7210 IN.
(AIH080)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	5.000	YMRP .0000 IN.
(AIH010)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	5.000	ZMRP .0000 IN.
			SCALE .0055

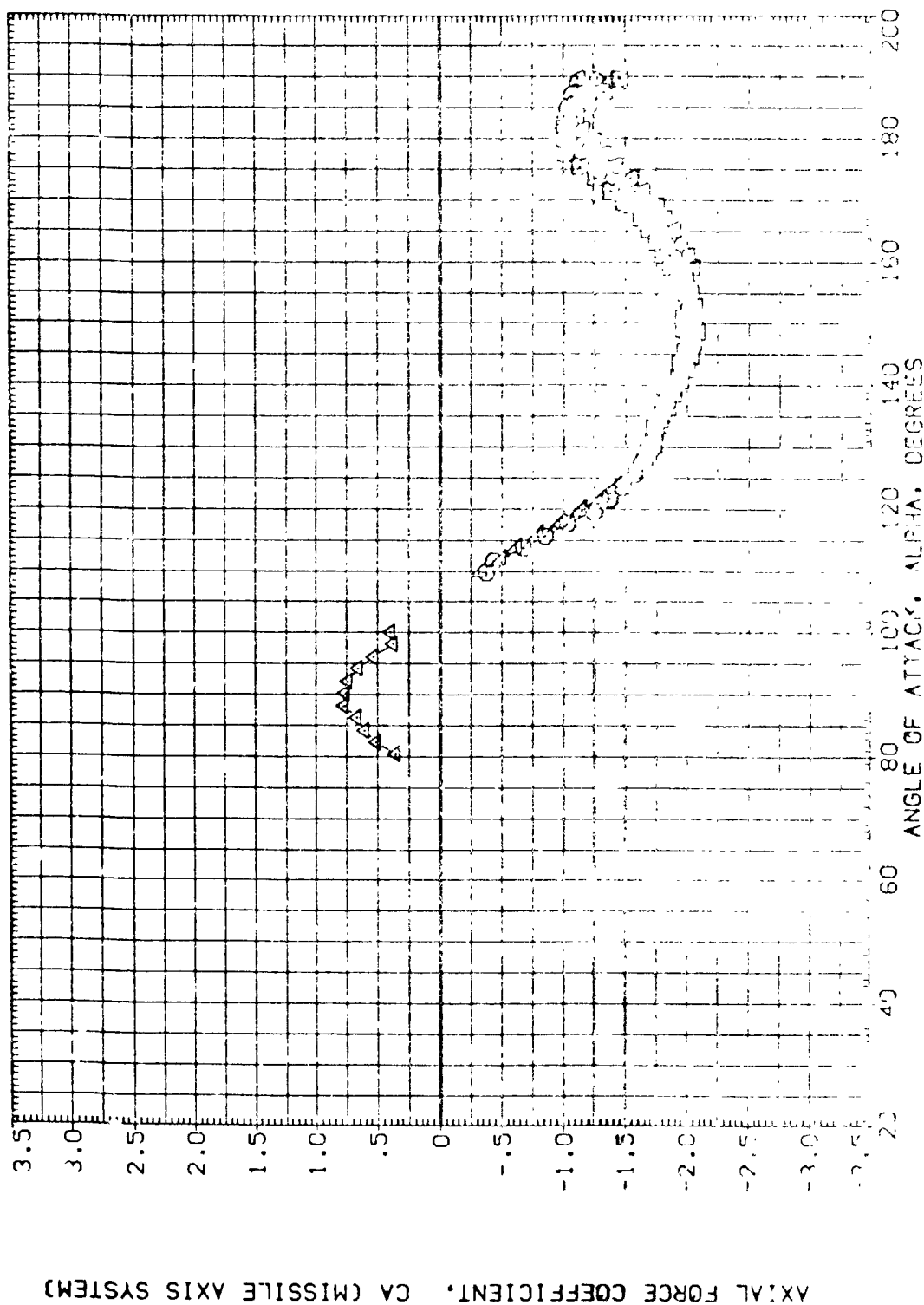


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(M)MACH = .60 PAGE 484

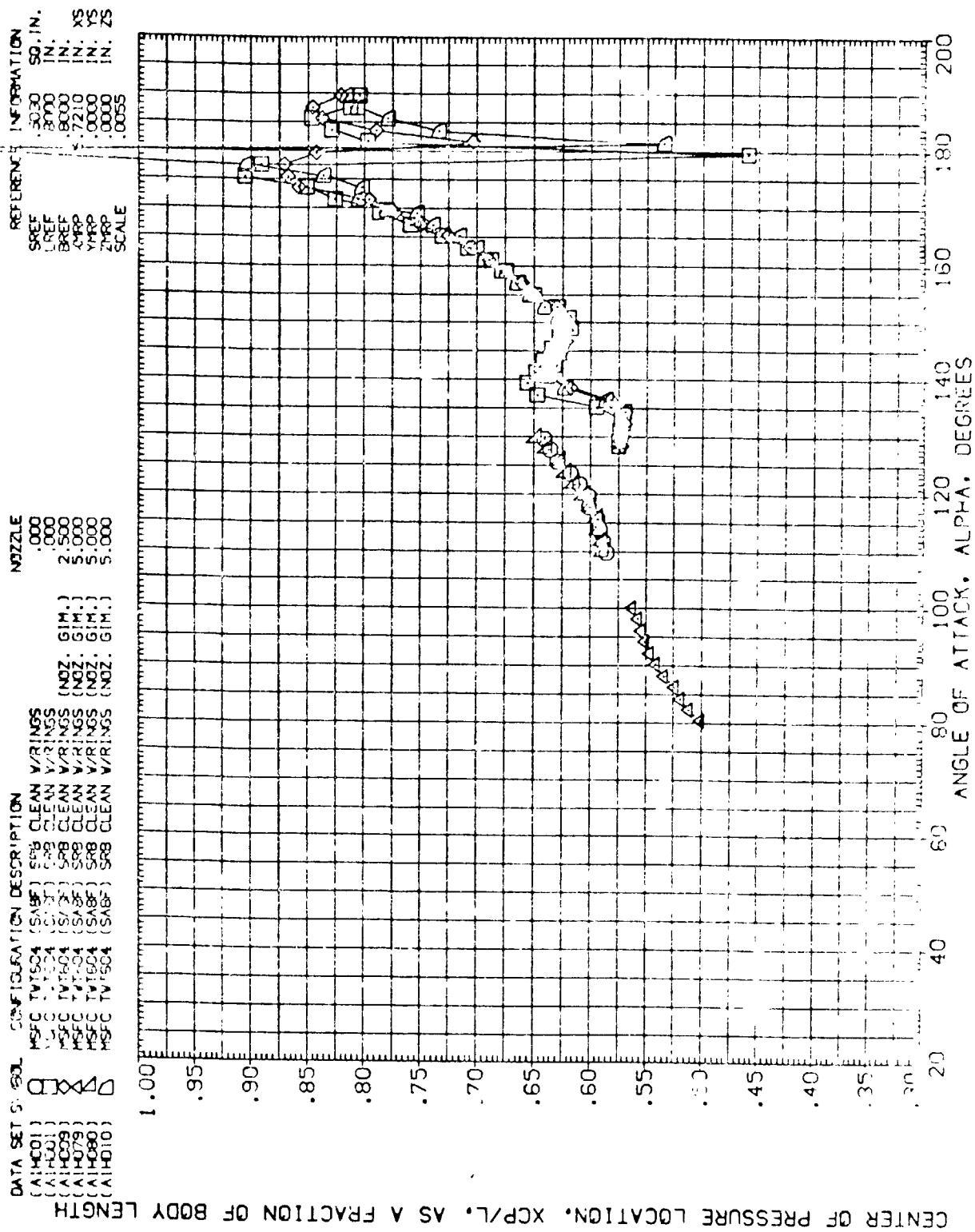


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	SREF .5030 50. IN.
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	LREF .5030 50. IN.
(A1H009)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	2.500	BREF .8000 80. IN.
(A1H079)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	5.000	XREF 5.2210 52.21 IN.
(A1H080)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	5.000	YREF .0000 0. IN.
(A1H010)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	5.000	ZREF .0000 0. IN.
			SCALE .0055

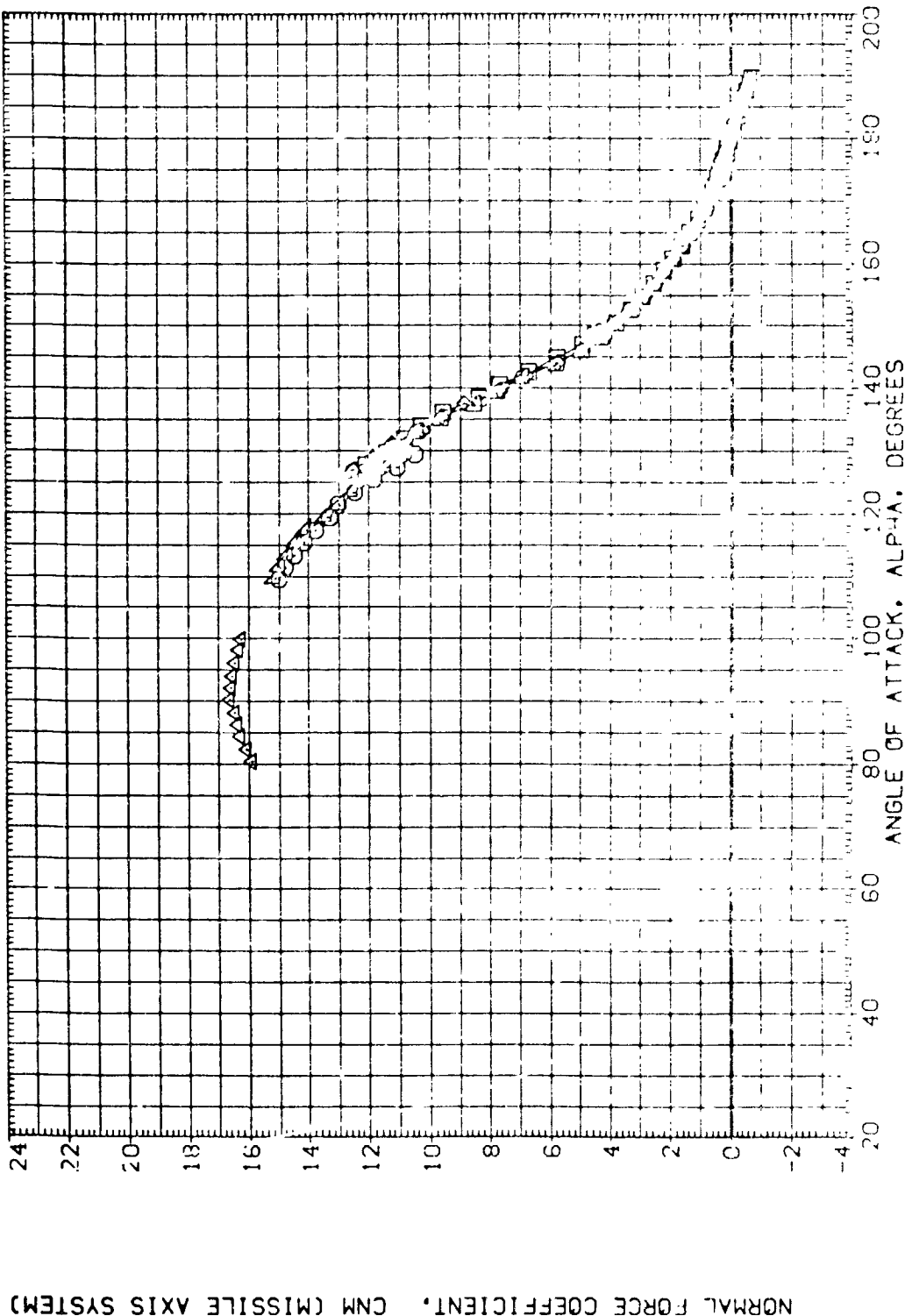


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(B)MACH = .90

DATA SET SERIAL	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(A1H001)	NSC T47604 (SABF) SRB CLEAN V/RINGS	.000	SRF .5030 SQ. IN.
(A1H002)	NSC T47604 (SABF) SRB CLEAN V/RINGS	.000	LSRF .8070 IN.
(A1H003)	NSC T47604 (SABF) SRB CLEAN V/RINGS	2.500	LSRF .8070 IN.
(A1H004)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H005)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H006)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H007)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H008)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H009)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
(A1H010)	NSC T47604 (SABF) SRB CLEAN V/RINGS	5.000	LSRF .8070 IN.
			SCALE .0055

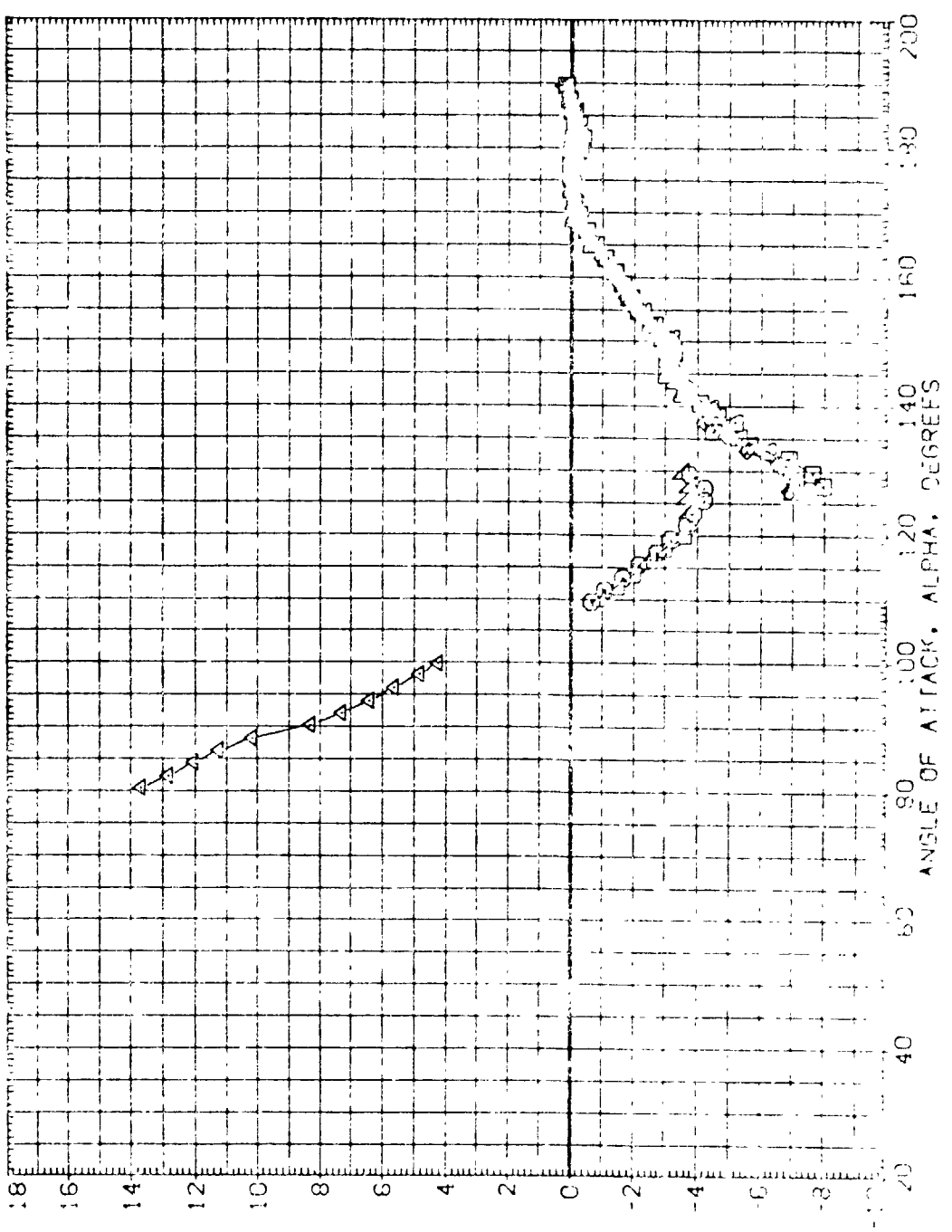


FIGURE 29. EFFECT OF NOZZLE GIBBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS

(ROMACH)

DATA SET SYMBOL	CONF	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(A1H001)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	.000	SREF 7030 SQ IN.
(A1H002)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	.000	LREF 1000 IN.
(A1H003)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	2.500	URF 1000 IN.
(A1H004)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	5.000	VRP 5.7210 IN.
(A1H005)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	5.000	VRP .0000 IN.
(A1H006)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	5.000	ZMP .0000 IN.
(A1H010)	MSFC	TV1504 (SABF) SRB CLEAN V/RINGS	5.000	SCALE .0055

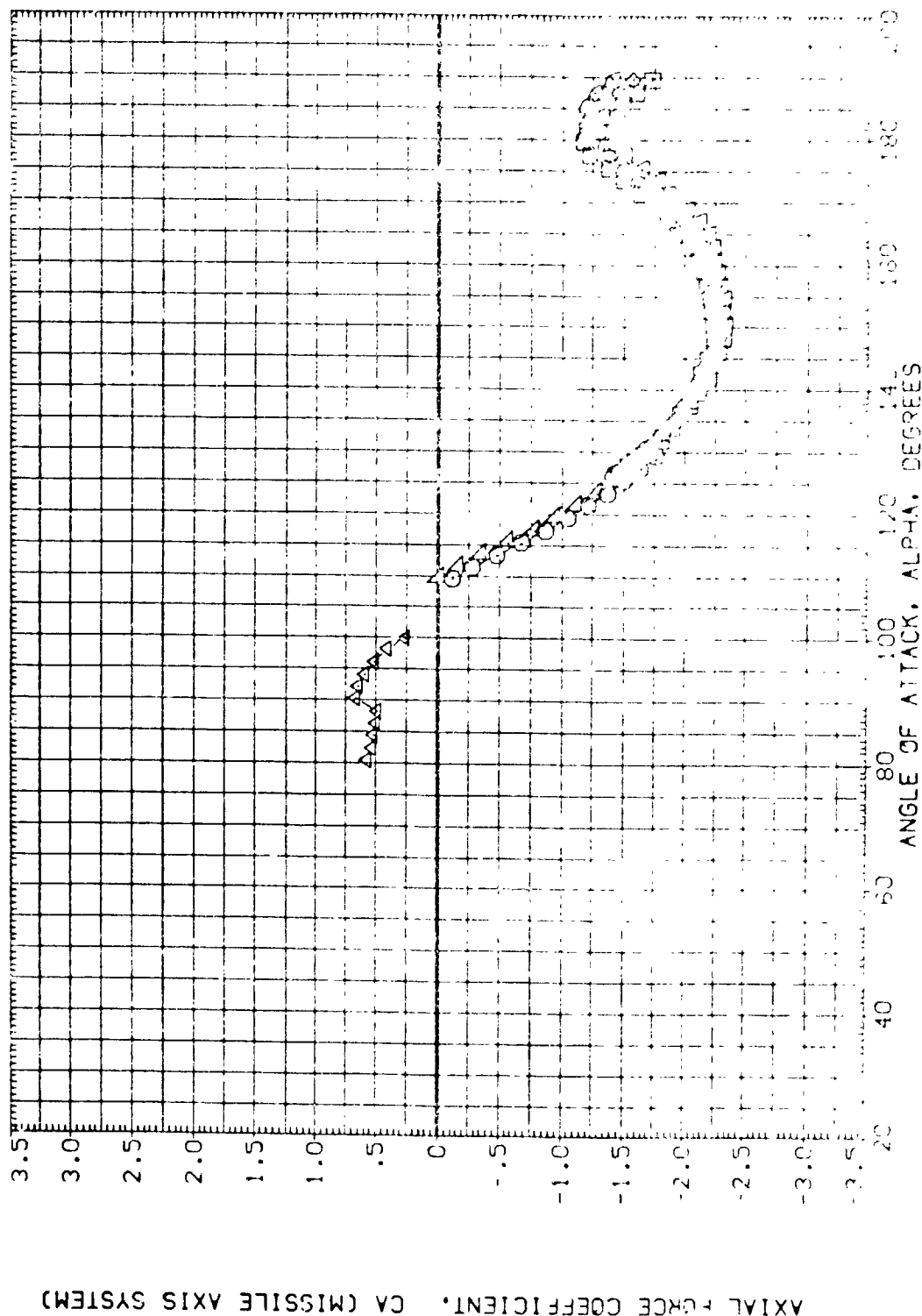


FIGURE 73. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(B)MACH = .30

115TH



FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SDB STATIC STABILITY CHARACTERISTICS

11

100

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(A)H011	MSFC VT604 (SABF) SRB CLEAN V/RINGS	.000	SAFE
(A)H001	MSFC VT604 (SABF) SRB CLEAN V/RINGS	.000	SAFE
(A)H003	MSFC VT604 (SABF) SRB CLEAN V/RINGS	2.500	SAFE
(A)H079	MSFC VT604 (SABF) SRB CLEAN V/RINGS	5.000	SAFE
(A)H080	MSFC VT604 (SABF) SRB CLEAN V/RINGS	5.000	SAFE
(A)H010	MSFC VT604 (SABF) SRB CLEAN V/RINGS	5.000	SAFE

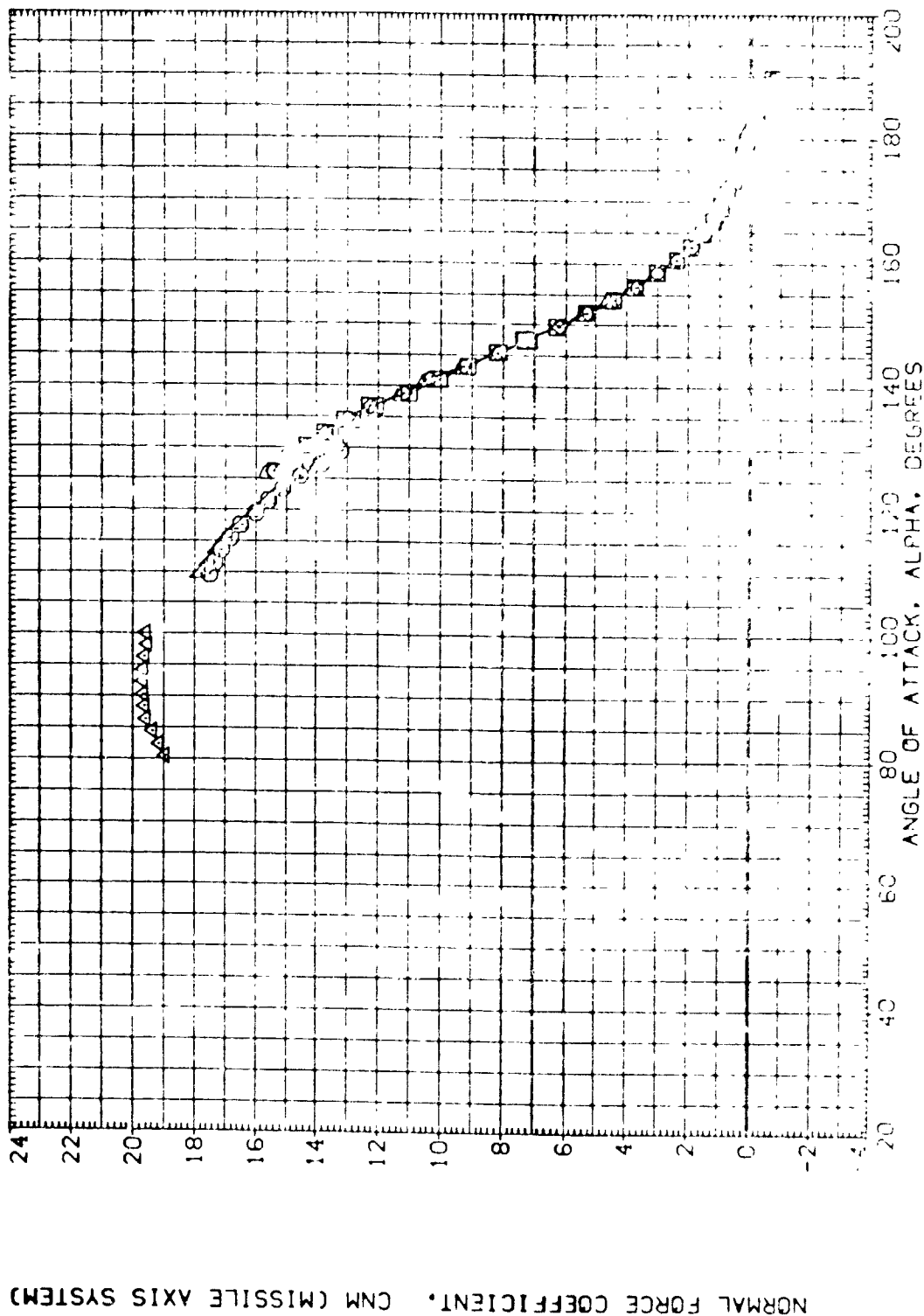


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(C)MACH = 1.20





REFERENCE INFORMATION  
 SREF 5030 50. IN.  
 LREF 3300 33. IN.  
 BREF 3300 33. IN.  
 XREF 5030 50. IN.  
 YREF 3300 33. IN.  
 ZREF 3300 33. IN.  
 SCALE 1.0000

NOZZLE  
 .000  
 .000  
 2.500  
 5.000  
 5.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (A1H001) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H002) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H003) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H004) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H005) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H006) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H007) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H008) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H009) MSEC V1604 (SAB) SRB CLEAN V/RINGS  
 (A1H010) MSEC V1604 (SAB) SRB CLEAN V/RINGS

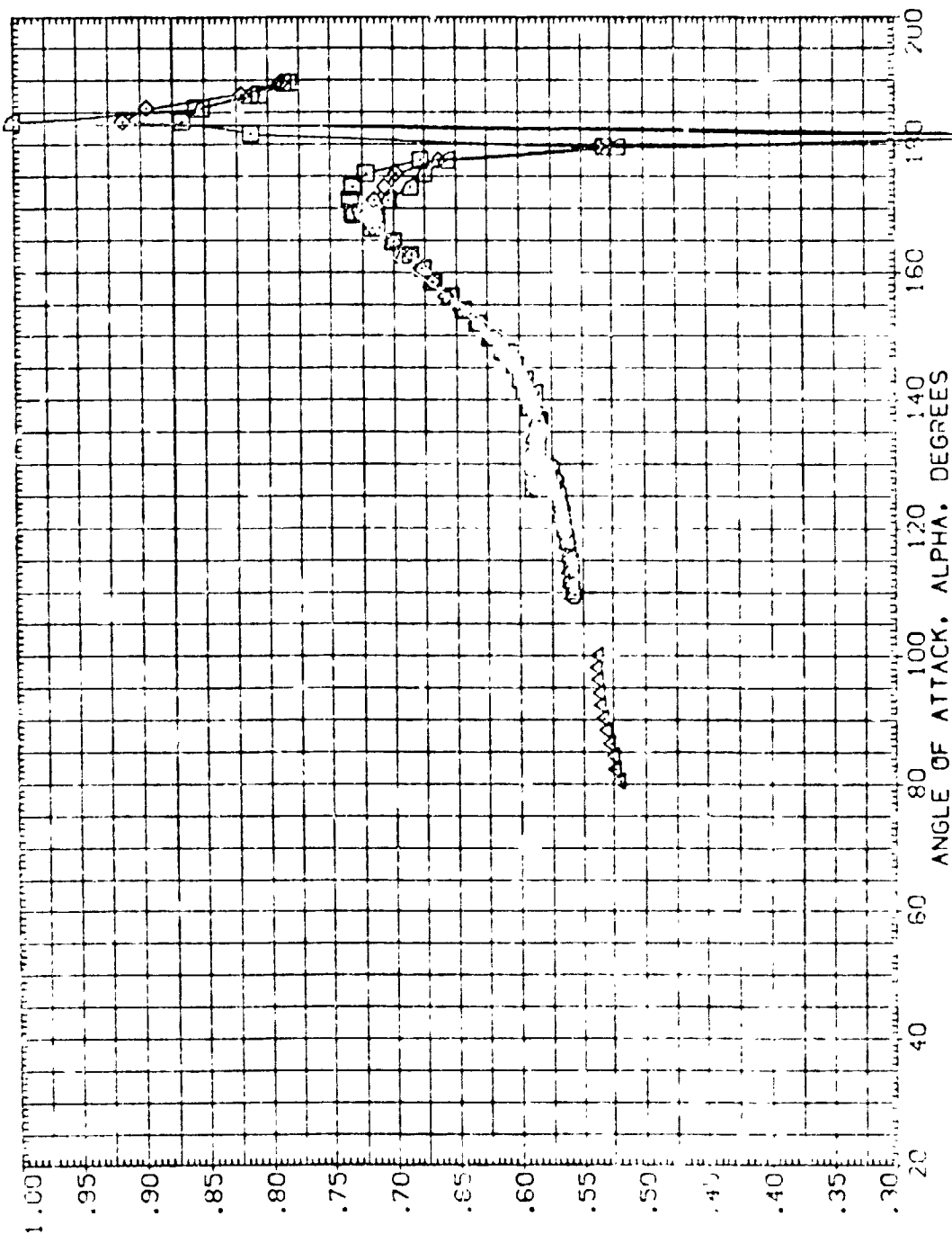


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
 (C)MACH = 1.20  
 PAGE 493



DATA SET SYMBOL	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	NOZZLE	REFERENCE INFORMATION
(AIH001)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	.000	SREF
(AIH002)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	.000	LOTF
(AIH003)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	2.500	NO
(AIH004)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH005)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH006)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH007)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH008)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH009)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO
(AIH010)	MSFC	TVT504	(SABF)	SAB	CLEAN	V/RINGS	5.000	NO

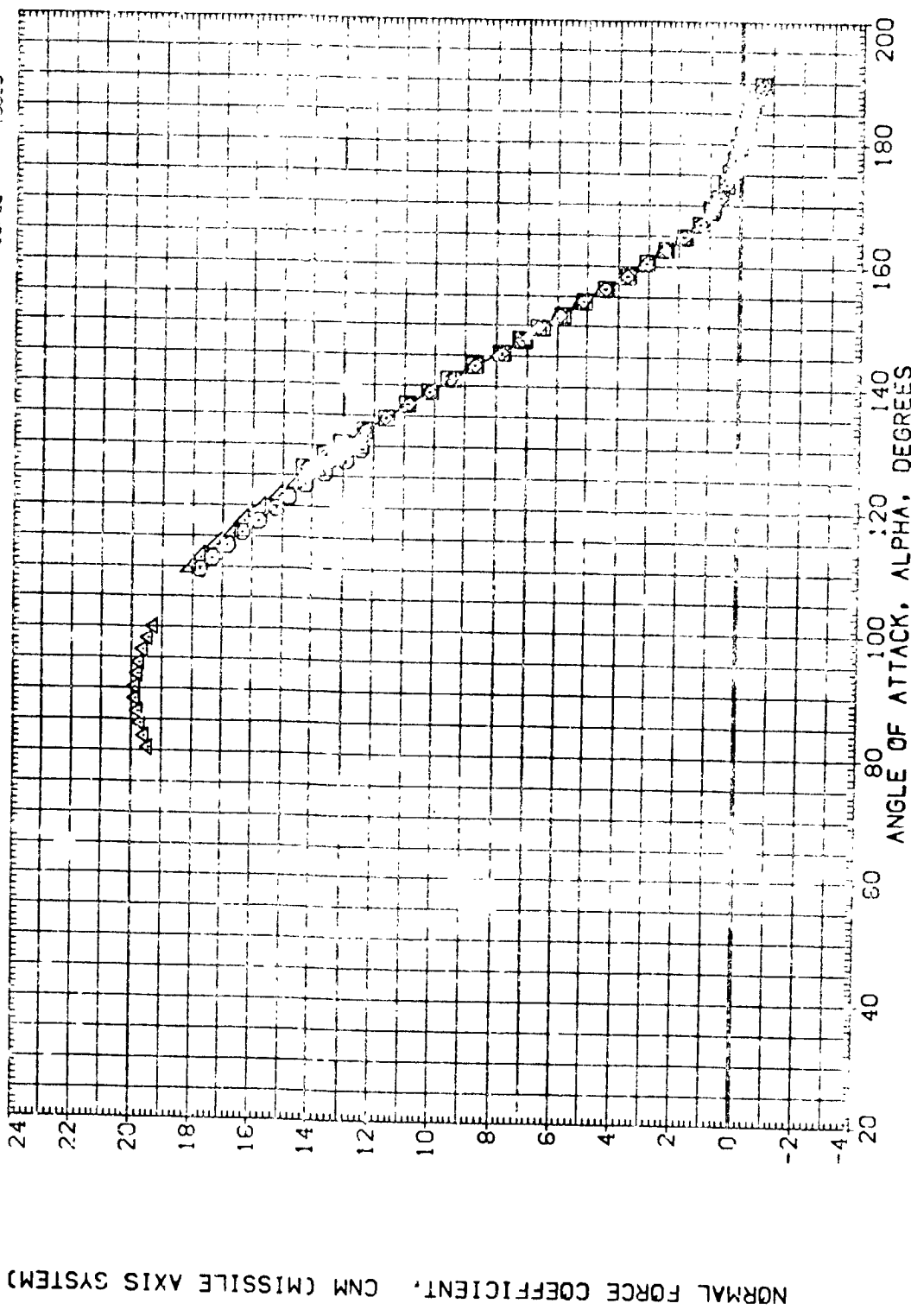


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
 (MACH = 1.96)

REFERENCE INFORMATION

SREF	.5030	IN.	XS
LREF	.8000	IN.	YS
SREF	.8000	IN.	YS
XMRP	5.7210	IN.	YS
YMRP	.0000	IN.	YS
ZMRP	.0000	IN.	YS
SCALE	.0055		

NOZZLE

.000
.000
2.500
5.000
5.000

(NOZ. GIM.)

(NOZ. GIM.)
(NOZ. GIM.)
(NOZ. GIM.)
(NOZ. GIM.)

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

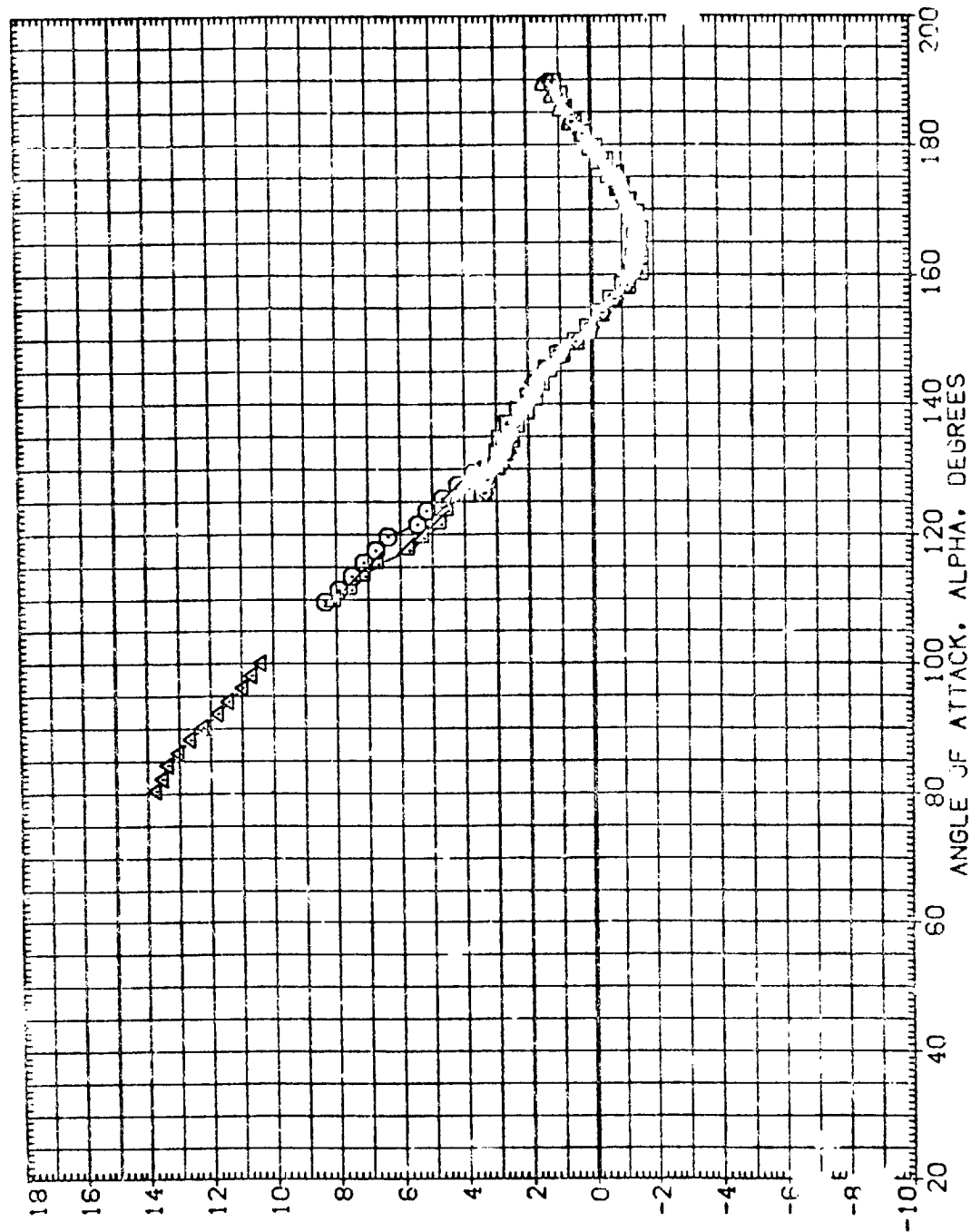
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS

MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS
MSFC TVT604 (SABF) SRB CLEAN V/RINGS



PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS

DATA SET SYMBL	CONF. CO.	CON DESCRIPTION	V/RINGS	NOZ. GIM.	NOZLE
(AIH001)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	.000
(AIH002)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	.000
(AIH003)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	2.000
(AIH004)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH005)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH006)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH007)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH008)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH009)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000
(AIH010)	MSFC T4T504	(SABF) SRB CLEAN	V/RINGS	(NOZ. GIM.)	5.000

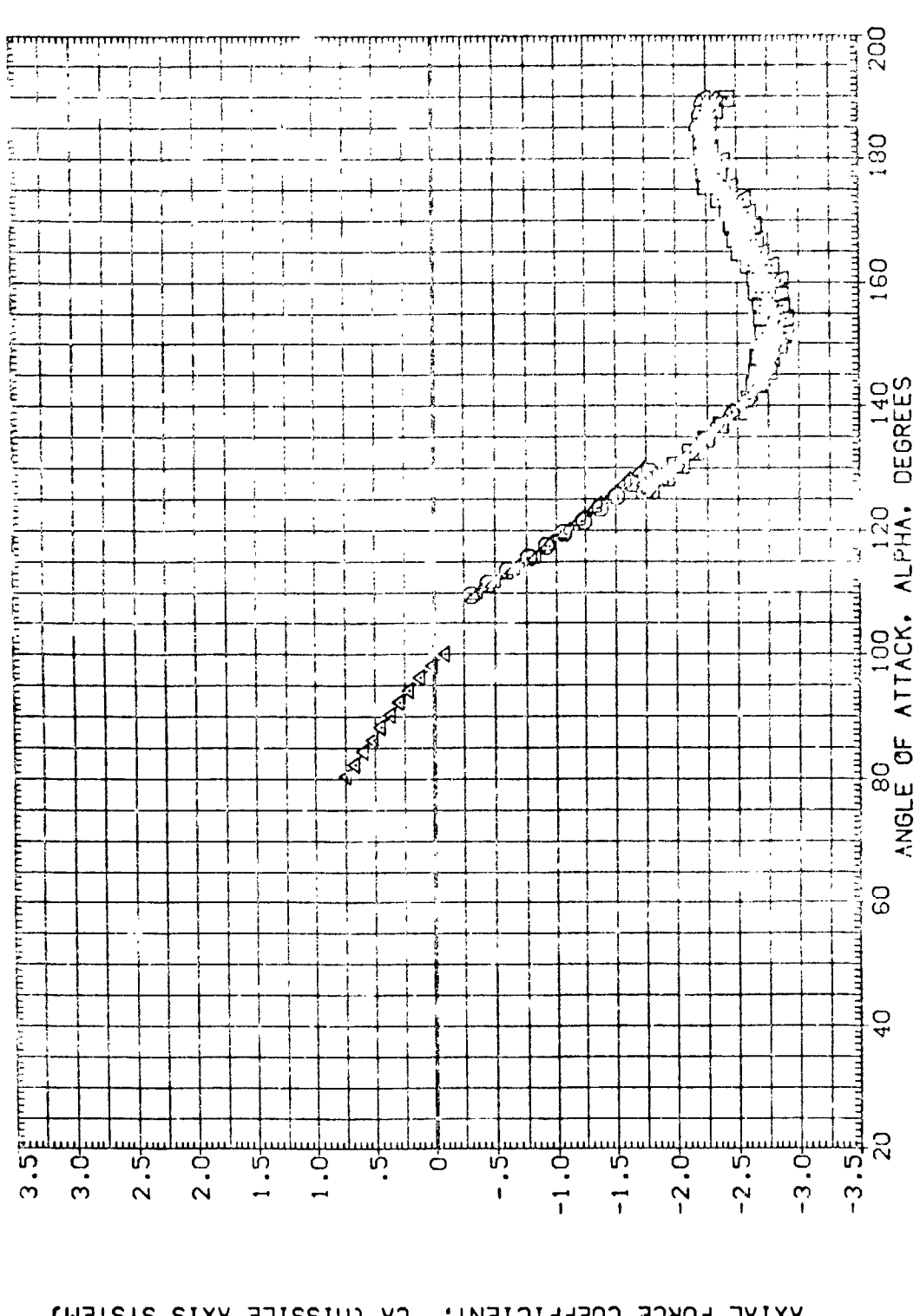


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(0)MACH = 1.96

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    NOZZLE

(A1-H001)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H002)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H003)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H004)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H005)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H006)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H007)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H008)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H009)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000
(A1-H010)	MSFC TVT604 (SA8F) SRB CLEAN V/RINGS	.000

REFERENCE INFORMATION

SREF	.5030	50. IN.
LREF	.8000	IN.
BREF	.8000	IN.
YMRP	5.7210	IN.
ZMRP	.0000	IN.
SCALE	.0055	

NOZZLE

.000
.000
.000
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.000
.000
.000
.000
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NOZZLE

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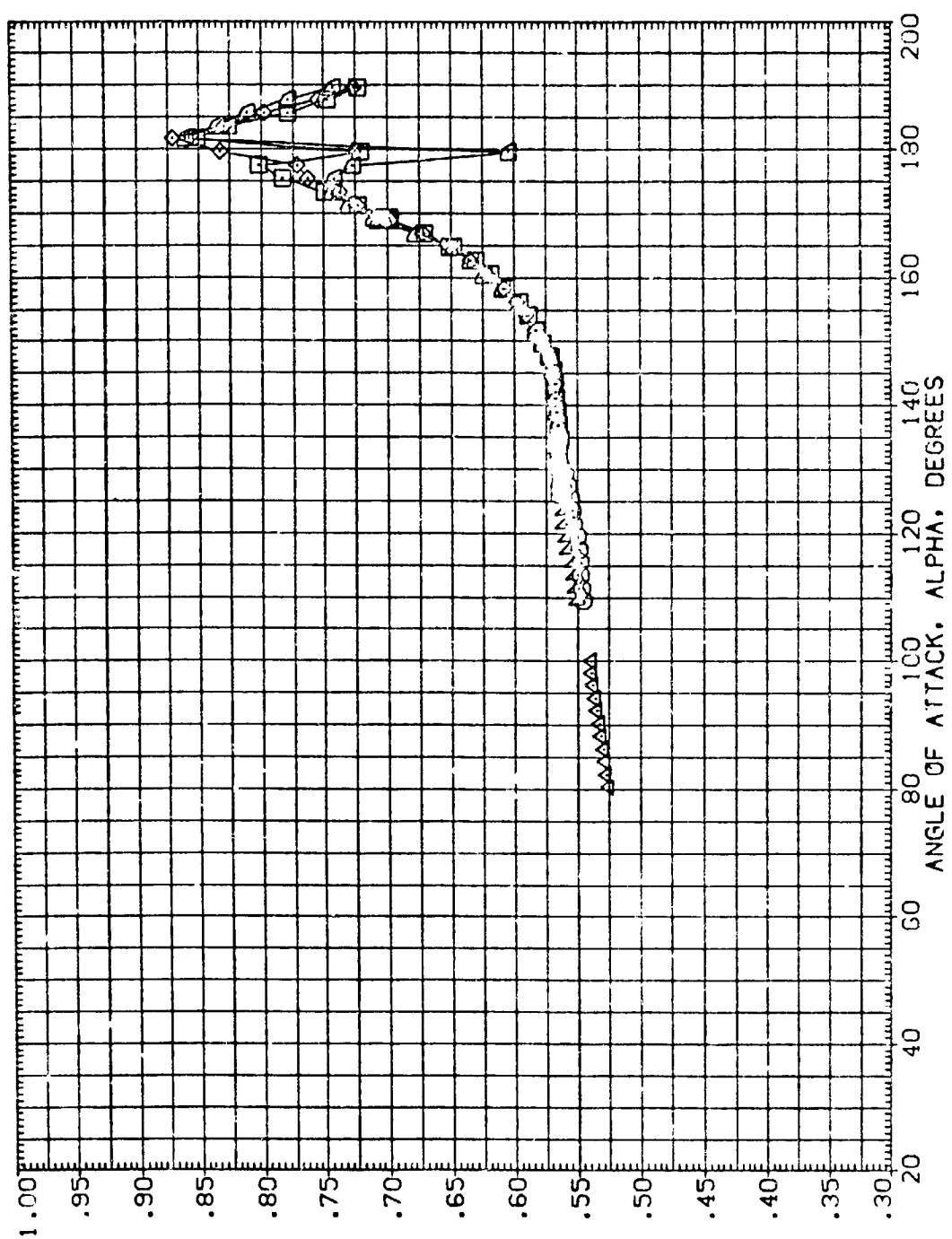


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(O)MACH = 1.96



DATA SET SYMBOL    CONFIGURATION DESCRIPTION    NOZZLE

(A1H001)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    .000

(A1H002)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    .000

(A1H003)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    2.500

(A1H004)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H005)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H006)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H007)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H008)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H009)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

(A1H010)    DATA NOT AVAILABLE    SRB CLEAN V/RINGS    5.000

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

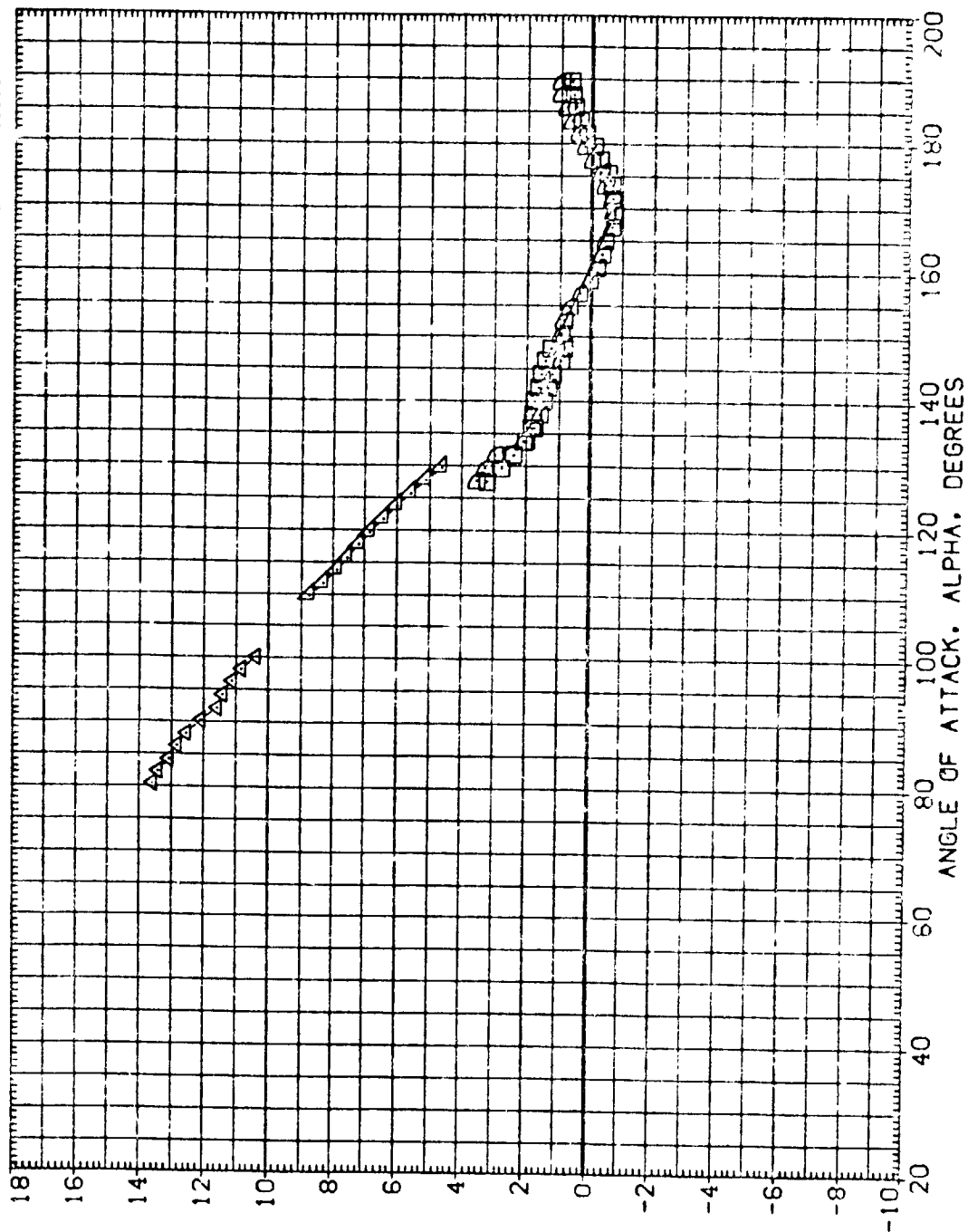


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS

(MACH = 2.74)







DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NOZZLE	NOZZLE INFORMATION
(A1H001)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	REF: 20.00
(A1H002)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS	.000	REF: 20.00
(A1H003)	DATA NOT AVAILABLE	2.000	REF: 20.00
(A1H004)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS (NOZ: GIM.)	5.000	REF: 20.00
(A1H005)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS (NOZ: GIM.)	5.000	REF: 20.00
(A1H006)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS (NOZ: GIM.)	5.000	REF: 20.00
(A1H010)	MSFC TVT604 (SABF) SRB CLEAN V/RINGS (NOZ: GIM.)	5.000	REF: 20.00

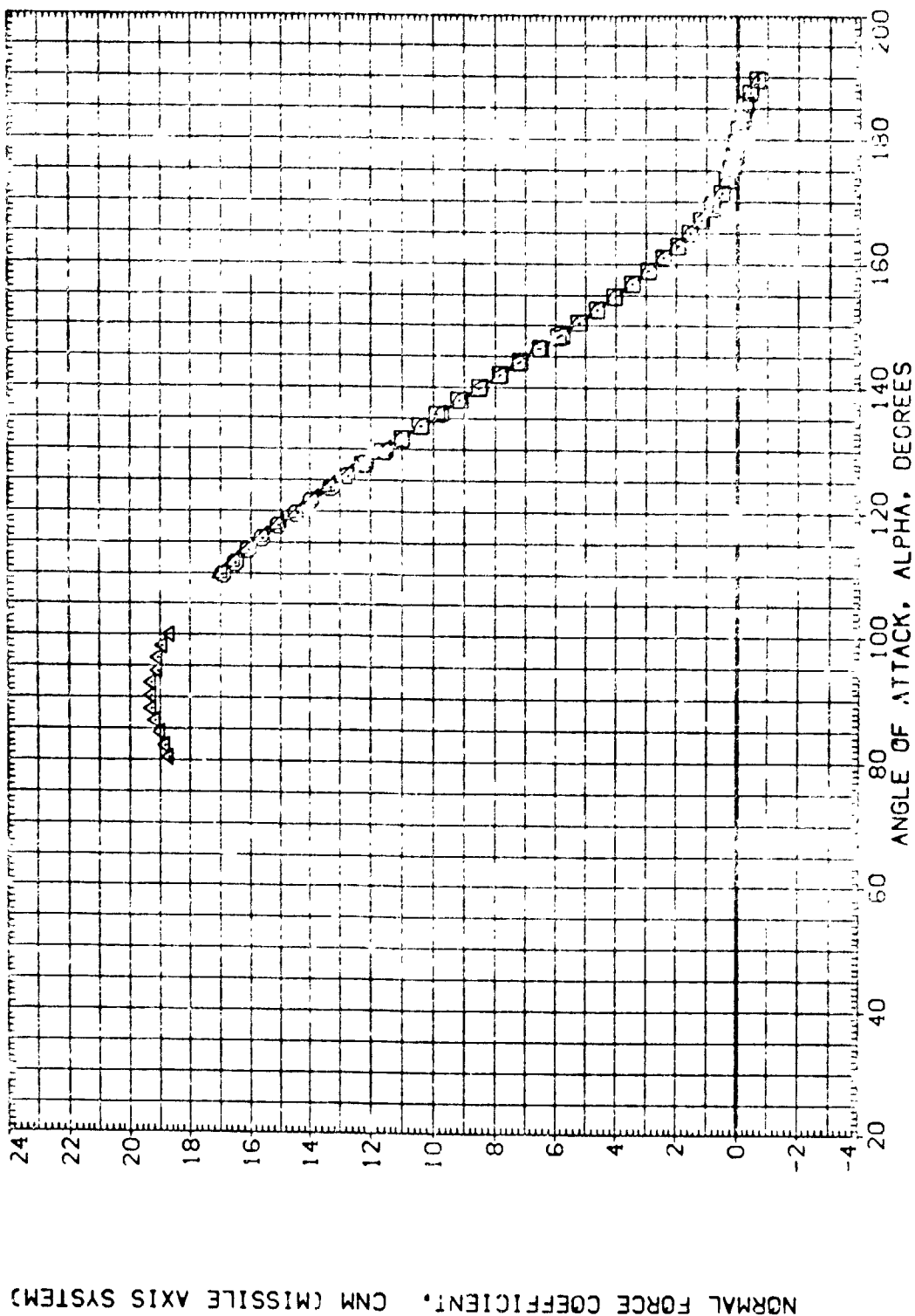


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(F)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NOZZLE	REFERENCE INFORMATION
(AIH001)	HSFC TV1804 (SA3F) SRB CLEAN V/RINGS	.000	SRREF .5030 SQ. IN.
(AIH001)	HSFC TV1804 (SA3F) SRB CLEAN V/RINGS	.000	REF .8000 IN.
(AIH009)	DATA NOT AVAILABLE	2.500	LRREF .9000 IN.
(AIH079)	HSFC TV1804 (SA3F) SRB CLEAN V/RINGS (NOZ. GIM.)	5.000	XMP .5720 IN. XS
(AIH060)	HSFC TV1804 (SA3F) SRB CLEAN V/RINGS (NOZ. GIM.)	5.000	YMP .0000 IN. YS
(AIH010)	HSFC TV1804 (SA3F) SRB CLEAN V/RINGS (NOZ. GIM.)	5.000	ZMP .0000 IN. ZS
			SCALE .0055

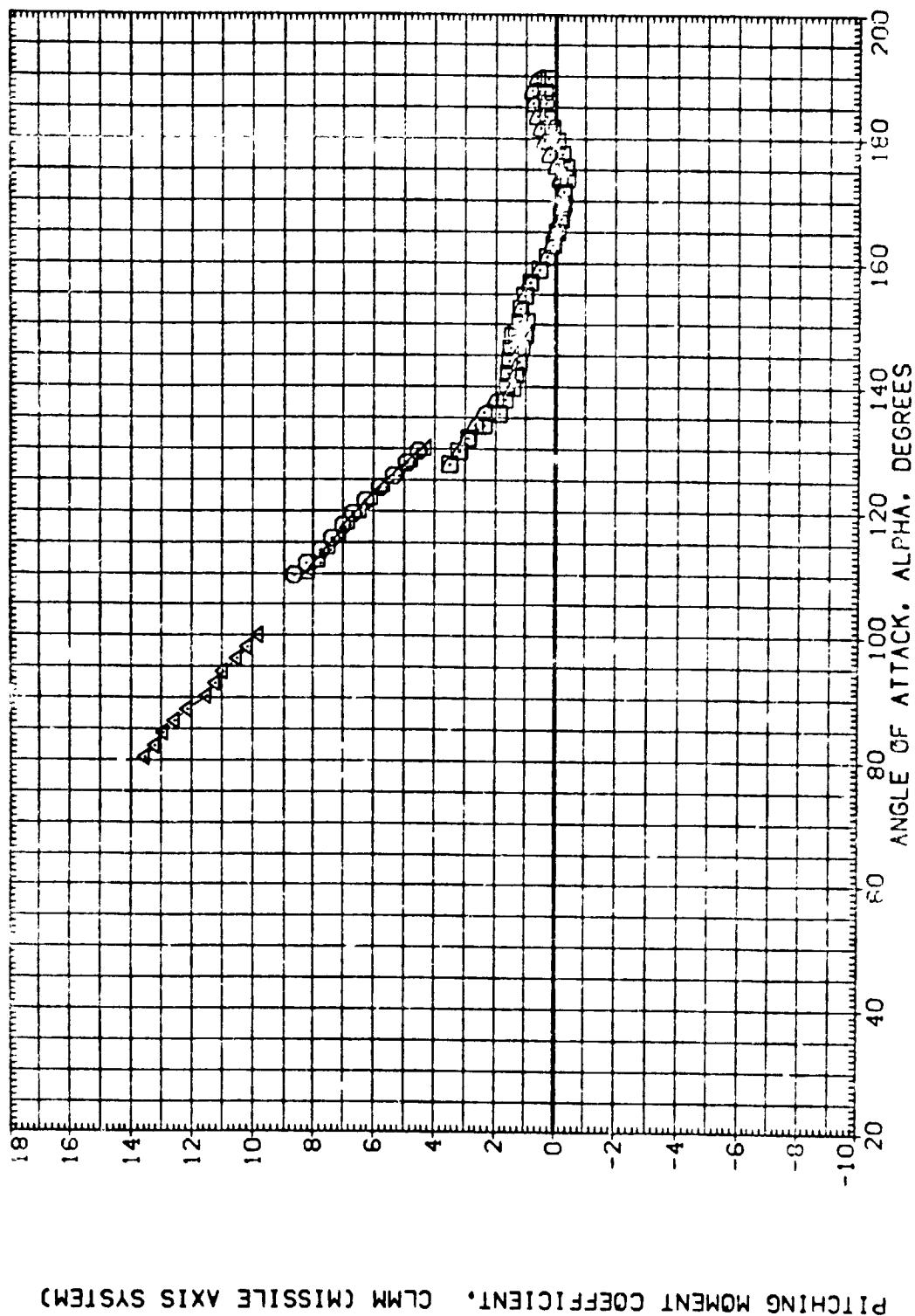


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(F)MACH = 3.48

DATA SET SYMBOL	CONF	IGN DESCRIPTION	NOZZLE
(AIH001)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS
(AIH002)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS
(AIH003)	DATA	NOT AVAILABLE	
(AIH004)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH005)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH006)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH007)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH008)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH009)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)
(AIH010)	MSFC	TVT604 (SABF)	SRB CLEAN V/RINGS (NOZ. GIM.)

AXIAL FORCE COEFFICIENT, CA (MISSILE AXIS SYSTEM)

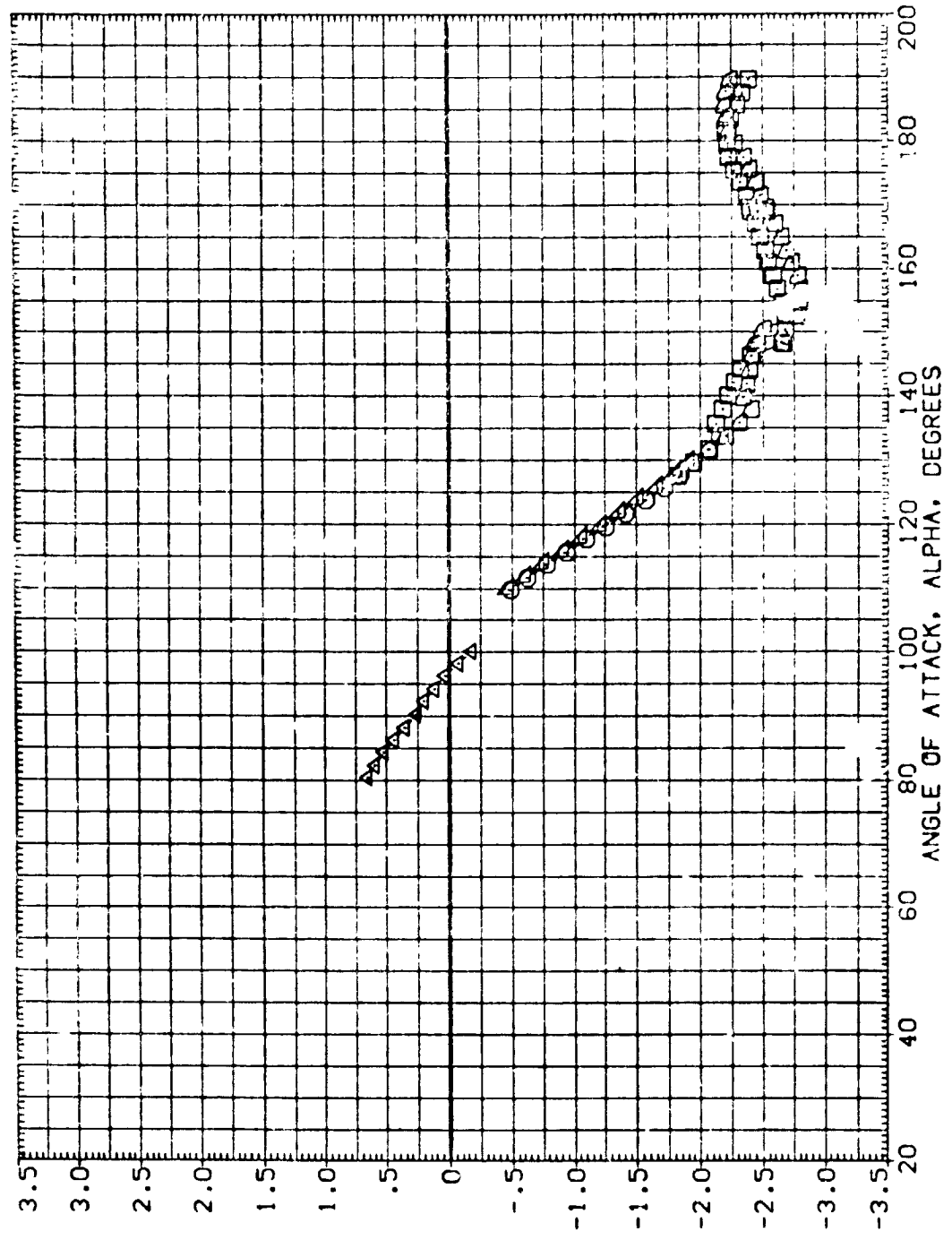


FIGURE 29. EFFECT OF NOZZLE GIMBAL ANGLE ON SRB STATIC STABILITY CHARACTERISTICS  
(F)MACH = 3.48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF 5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF 8000 IN.
(A1H011)	DATA NOT AVAILABLE	.000	SREF 5000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	XMRP 5.7210 IN. XS
			YMRP 3000 IN. YS
			ZMRP 3000 IN. ZS
			SCALE .0055

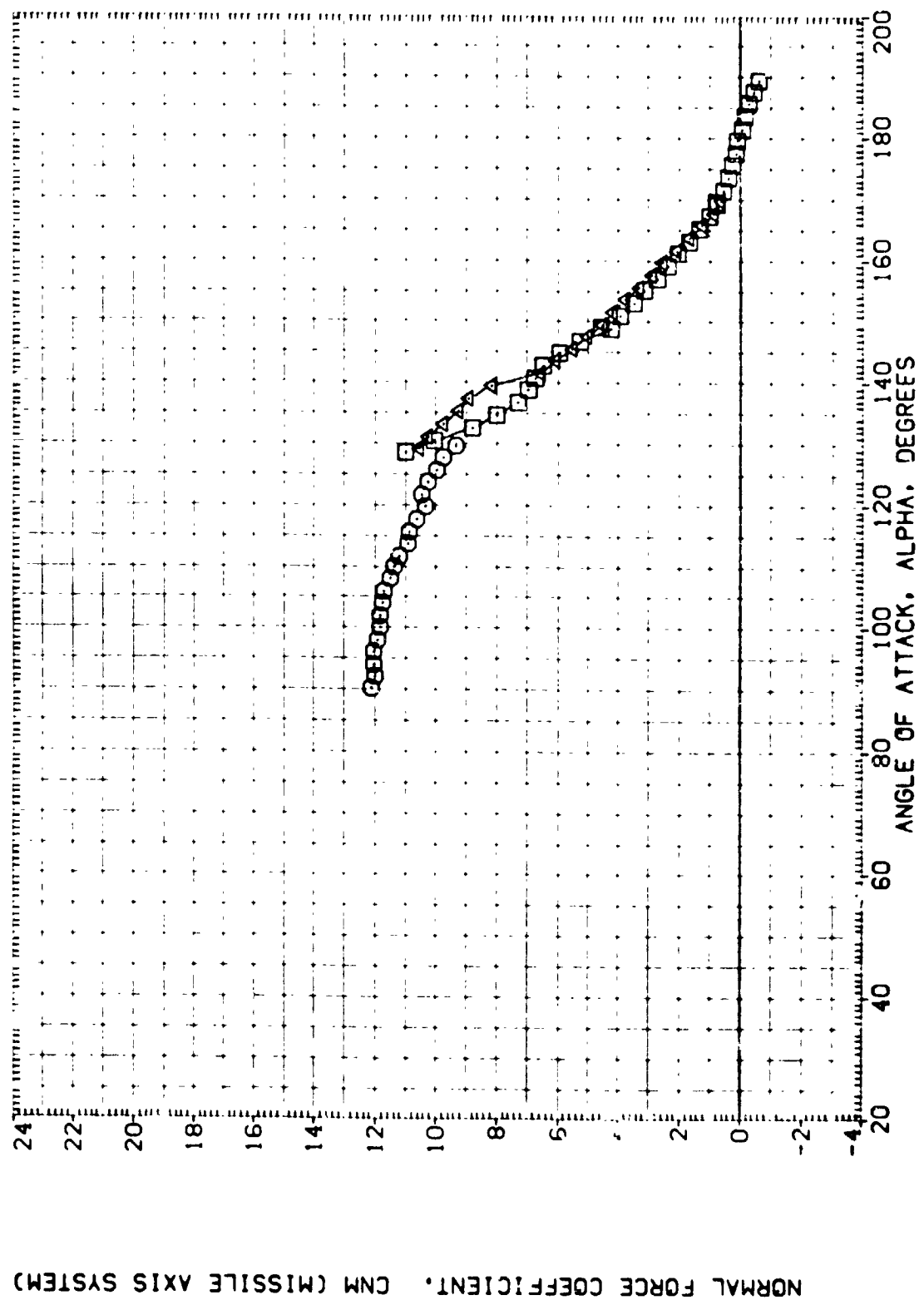


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

DATA SET SYMBOL: (A14003) (A14003) (A14003) (A14011) (A14011)

CONFIGURATION DESCRIPTION: MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-O.

PHI: .000 .000 .000 .000

REFERENCE INFORMATION: SREF .5030 IN. S0 IN. LREF .8000 IN. BREF .8000 IN. XS 5.7210 IN. YS .0000 IN. ZS .0000 IN. ZPRP .0000 IN. SCALE .0055

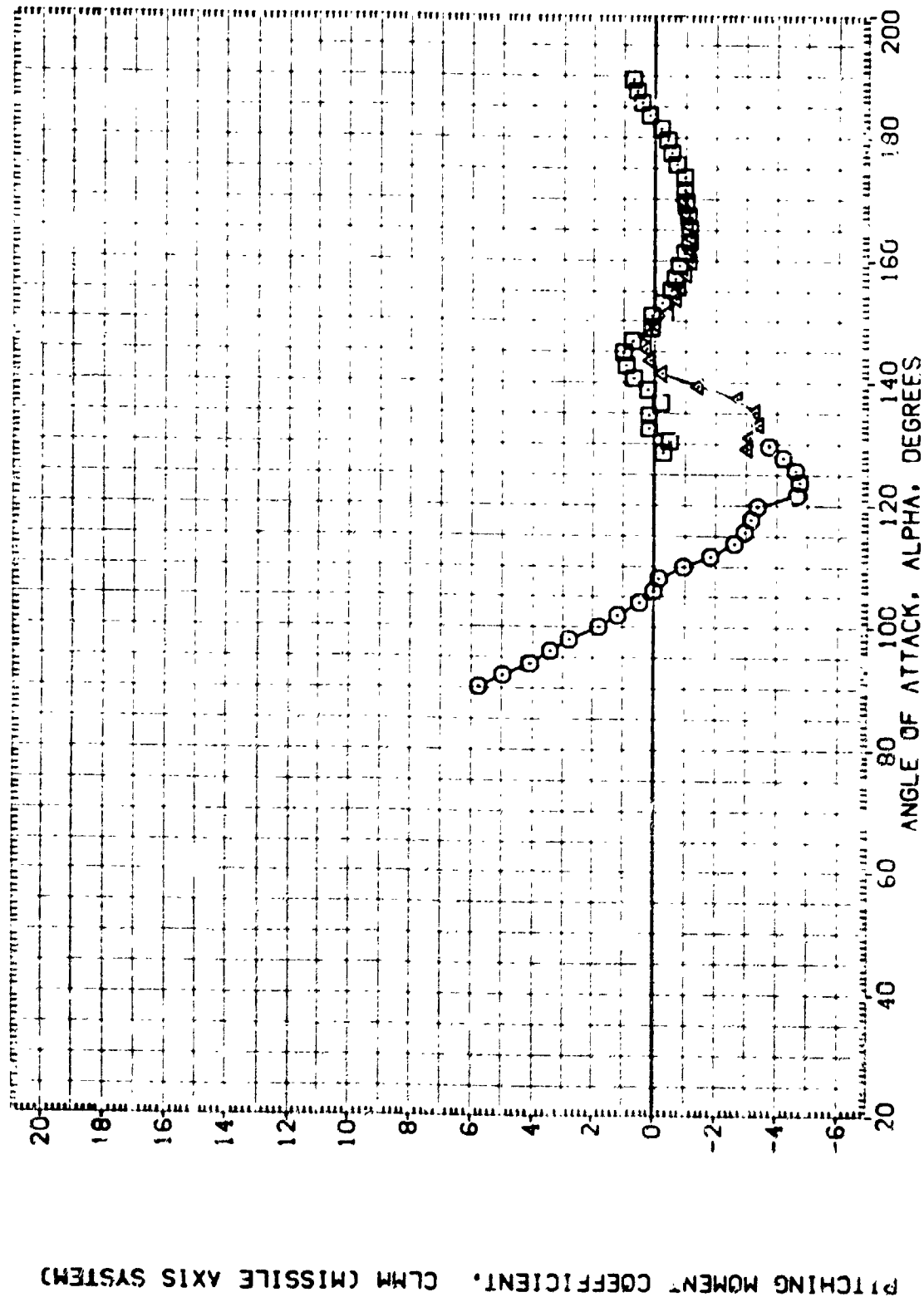


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(A)PACH = .40

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H003)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1H003)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1H011)    DATA NOT AVAILABLE    .000

(A1H011)    MSFC TVT604 (SABF) SRB WITH PROT. V/D HEAT SH-D.    .000

REFERENCE INFORMATION

SREF    .5030    SQ. IN.

LREF    .8000    IN.

BREF    .8600    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

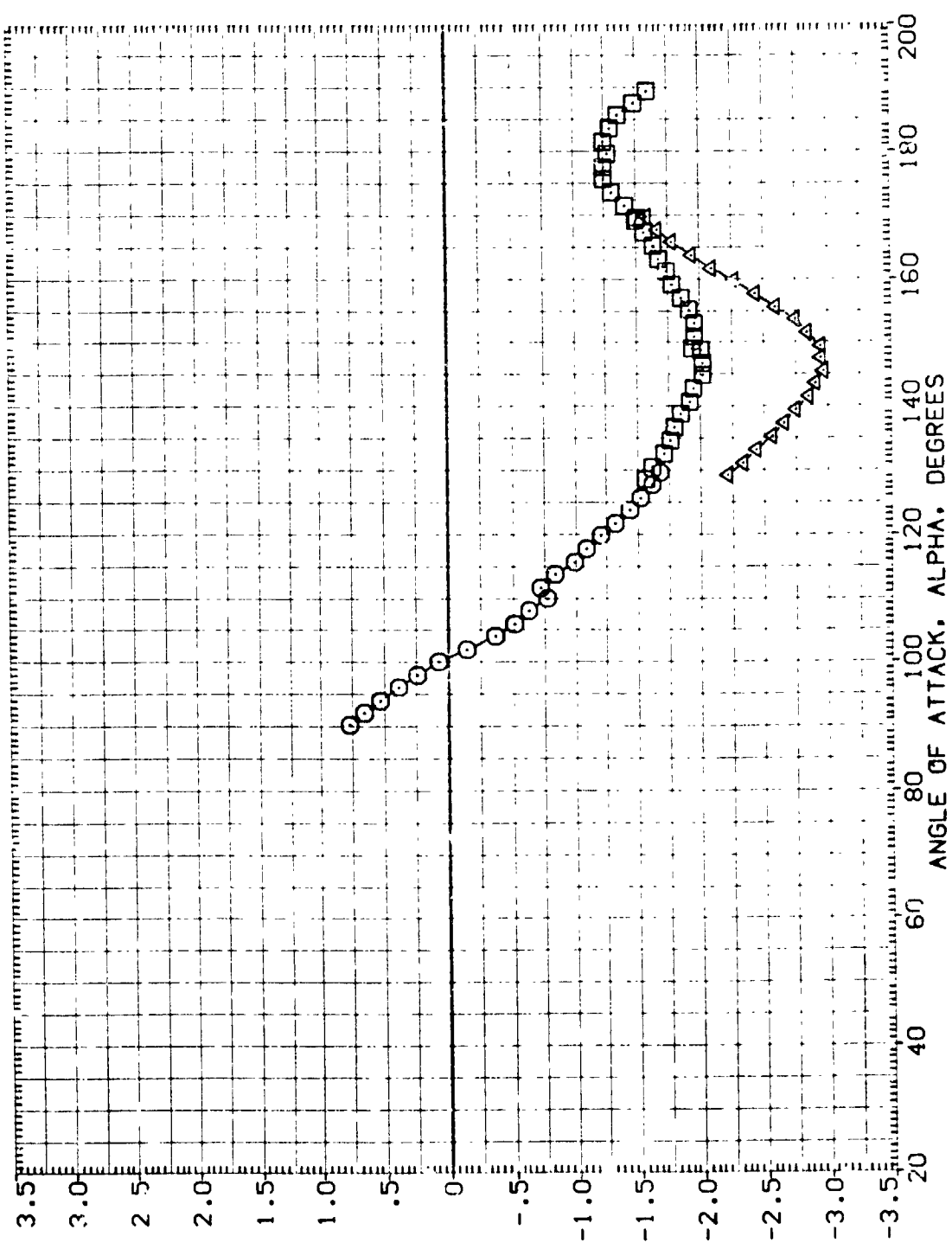


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 0)

(A)MACH = .40

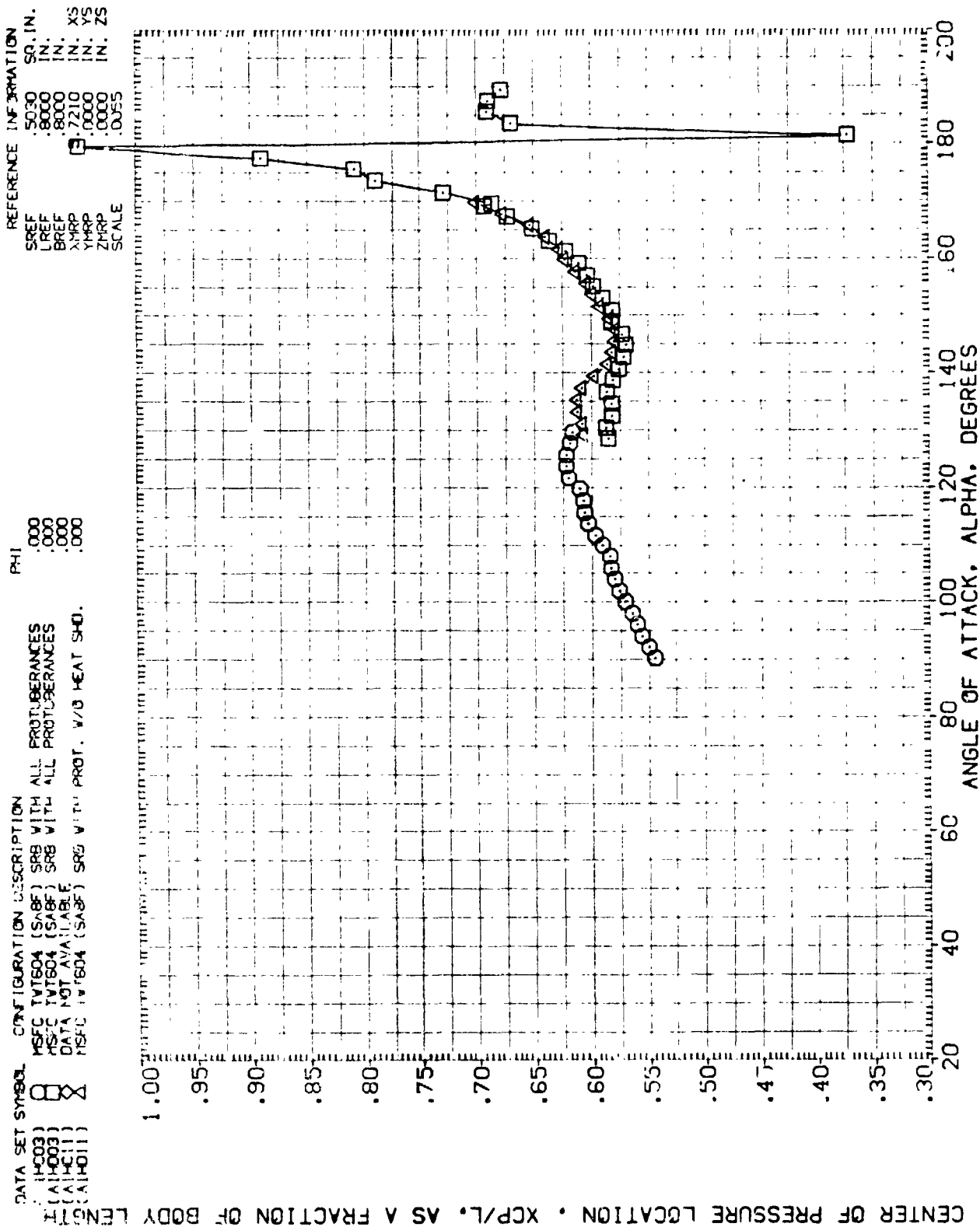


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHC.	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055 IN. ZS

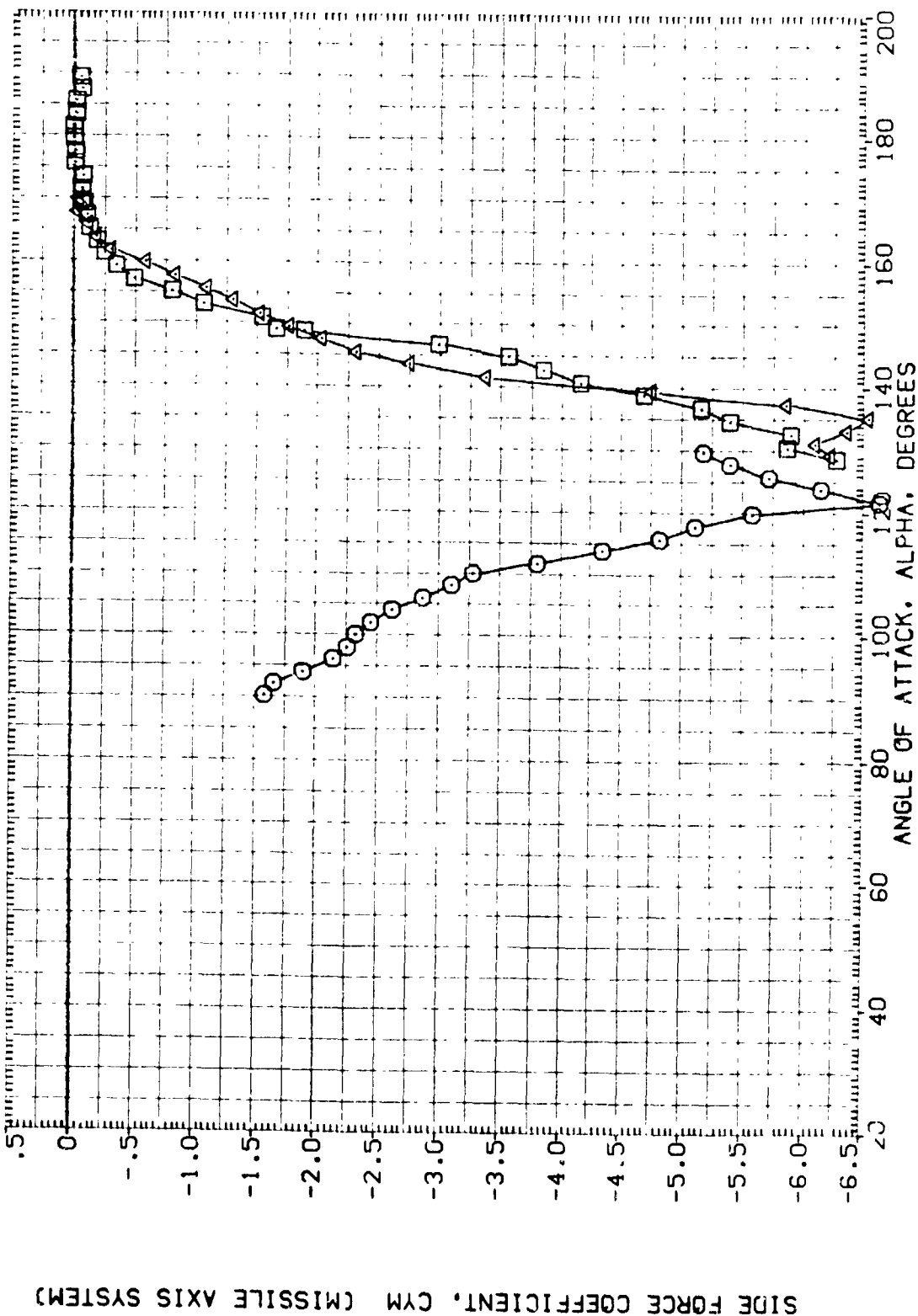


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(A)MACH = .40



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)M003	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	SREF .5030 SQ. IN.
(A)H003	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	LREF .8000 IN.
(A)H011	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A)H011	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	XMRF 5.7210 IN. XS
			YMRF .0000 IN. YS
			ZMRF .0000 IN. ZS
			SCALE .0055

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

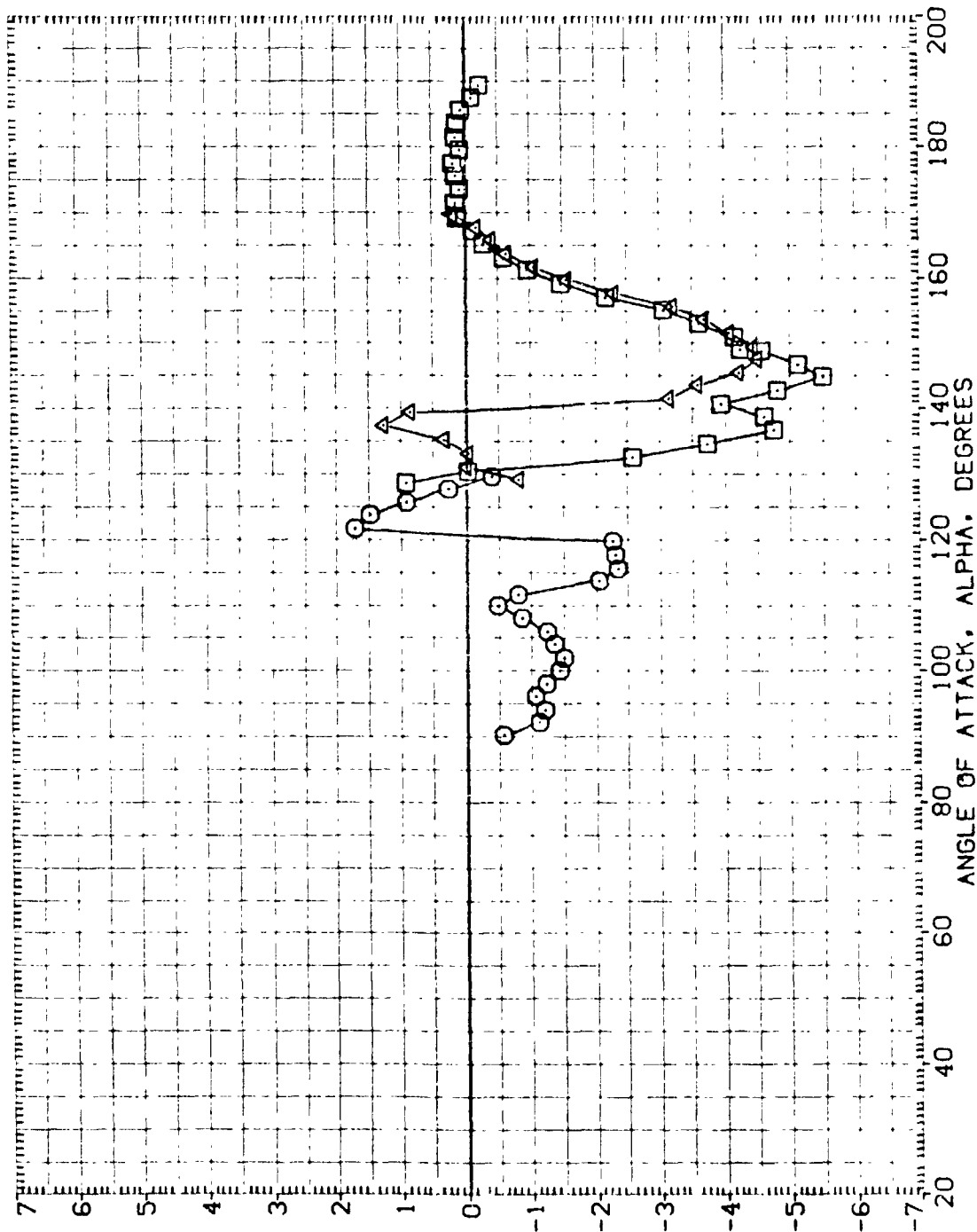


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHC03)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .503U
(AIHC03)	MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF 8.000
(AIHC11)	DATA NOT AVAILABLE	.000	BREF 8.000
(AIHC11)	MSFC TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000	XMRP S.7210
			YMRP .0000
			ZMRP .0000
			SCALE .00755
			VS IN.
			YS IN.
			ZS IN.

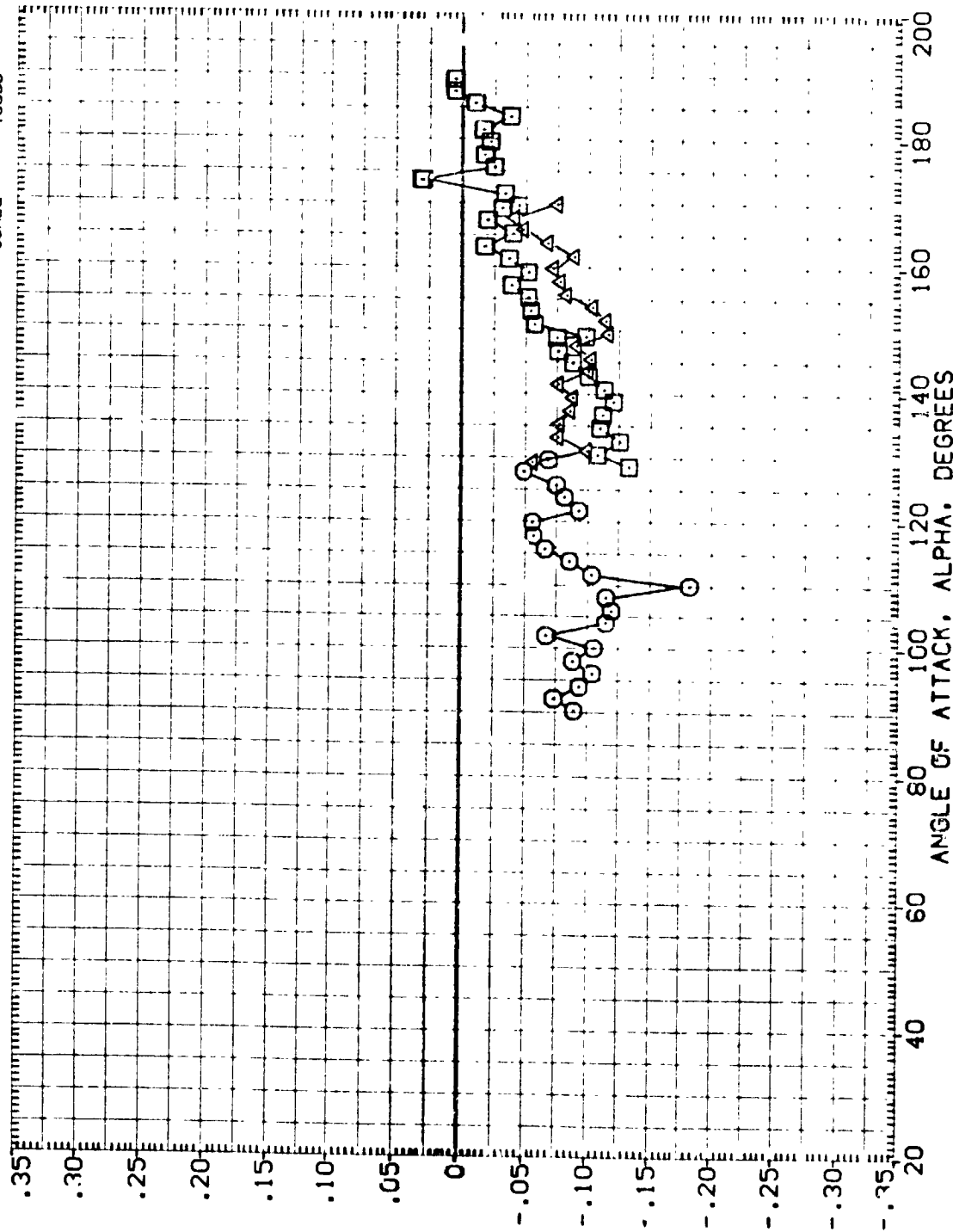


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. ( $\Phi = 0$ )

(A)MACH = .40

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(AIHC03)	MSFC TVT804 (SABF) SRB WITH ALL PROTOBERANCES	.000	SREF .5030 IN.
(AIHC03)	MSFC TVT804 (SABF) SRB WITH ALL PROTOBERANCES	.000	LREF .8000 IN.
(AIHC11)	MSFC TVT804 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000	BREF .8000 IN.
(AIHC11)	MSFC TVT804 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

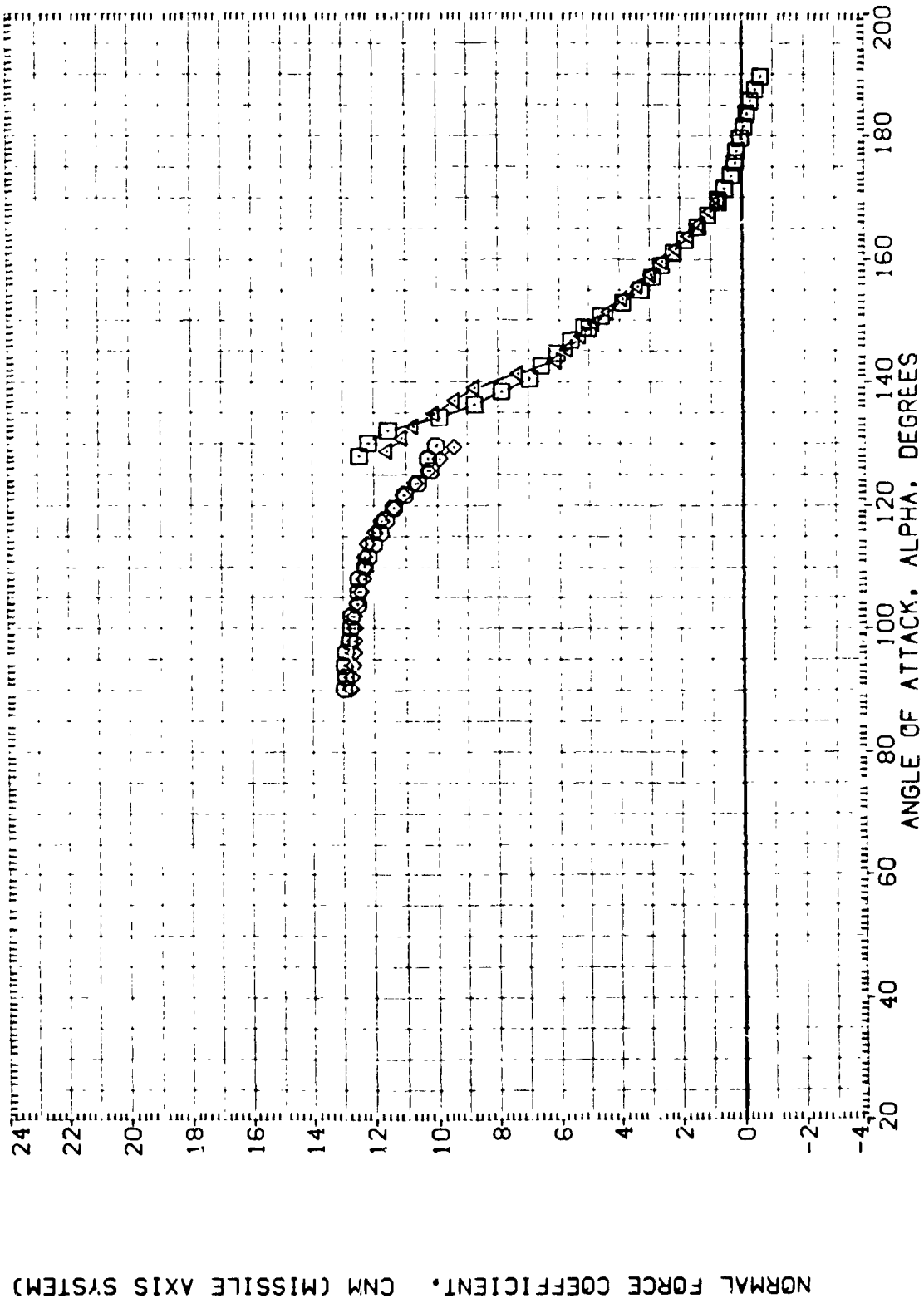


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTERISTICS. (PHI = 0)

(B)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	BREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	YMRP 5.7210 IN.
			ZMRP .0000 IN.
			SCALE .0055 IN.

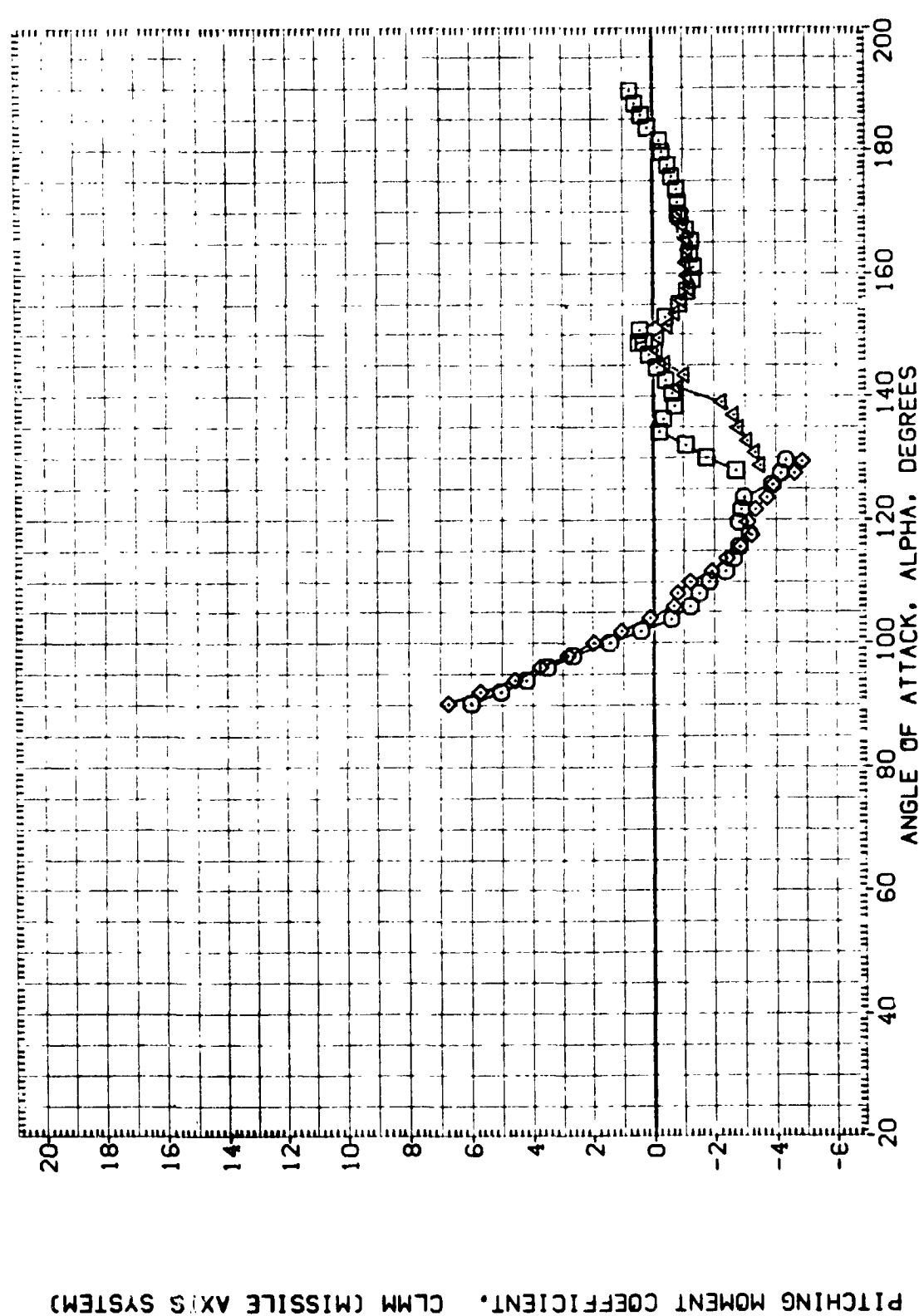


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(B)MACH = .60

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	SREF .5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	LPREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.	.000	EPREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.	.000	AMREF 5.7210 IN.
			VMREF .0000 IN.
			ZMREF .0000 IN.
			SCALE .0055

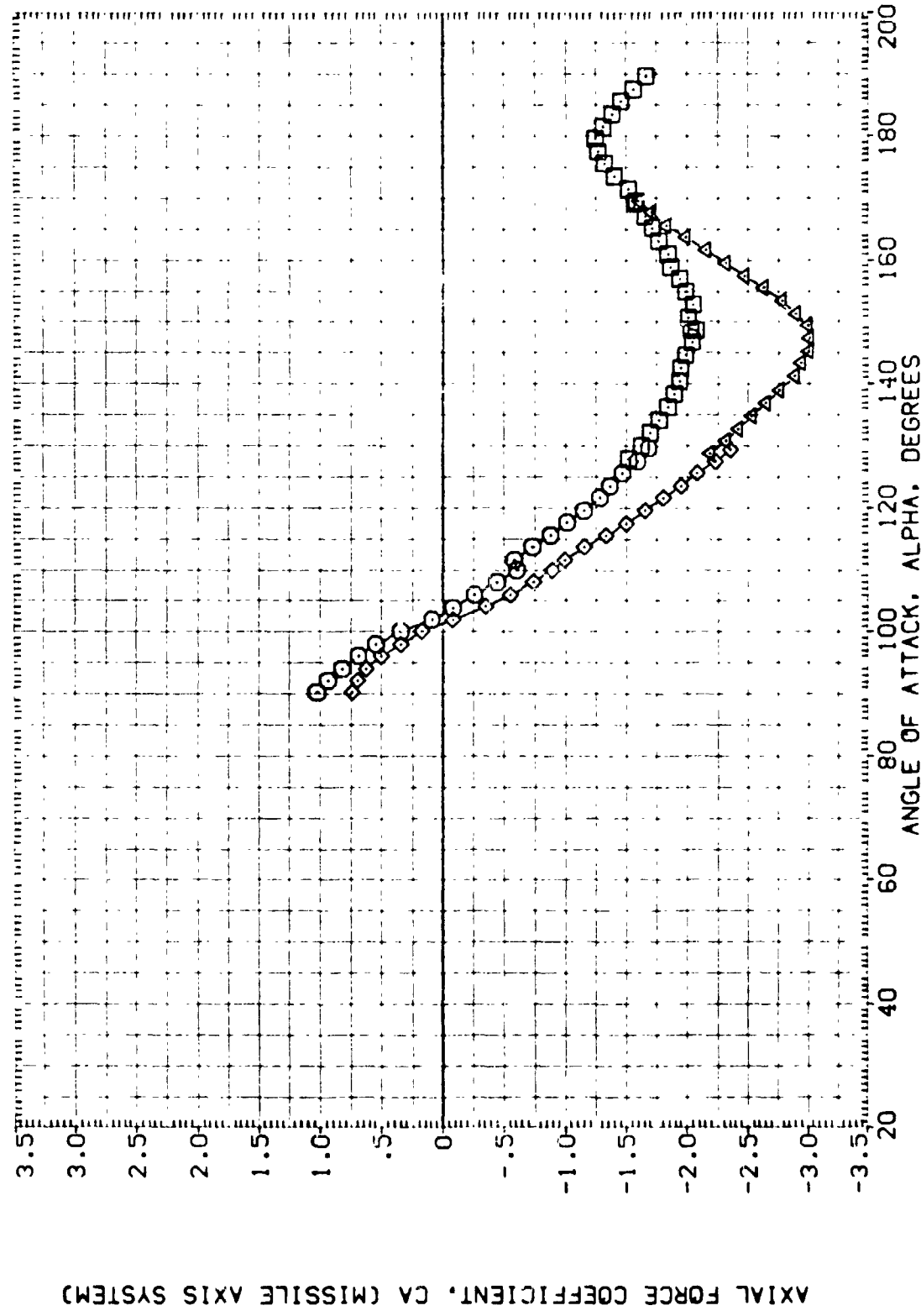


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

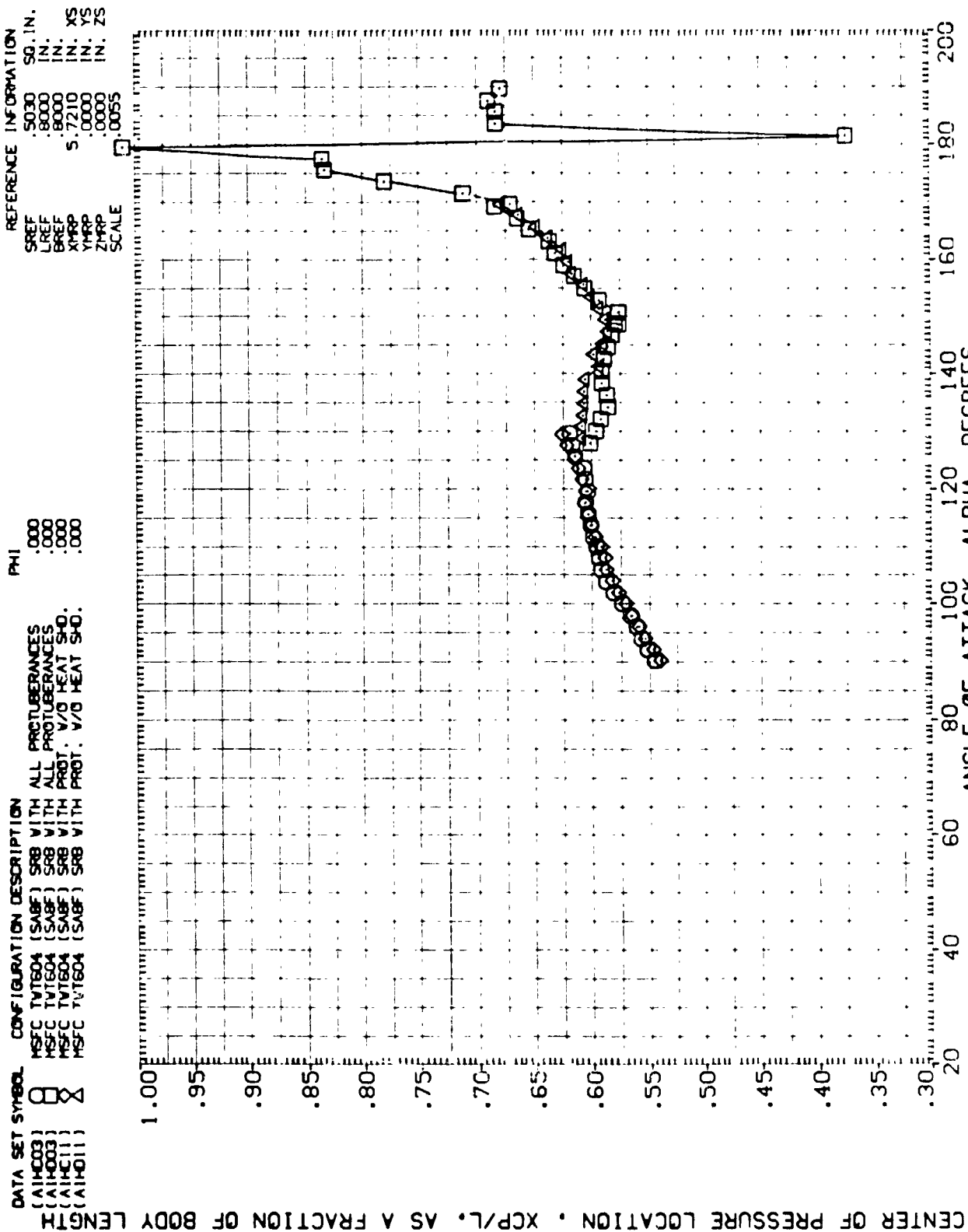


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(B)MACH = .60

DATA SET SYMBOL: (A1-H003)  
 (A1-H003)  
 (A1-H011)  
 (A1-H011)

CONFIGURATION DESCRIPTION: MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TWT604 (SABF) SRB WITH PROT. V/G HEAT SHD.  
 MSFC TWT604 (SABF) SRB WITH PROT. V/G HEAT SHD.

PHI: .000  
 .000  
 .000  
 .000

REFERENCE INFORMATION: SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

SIDE FORCE COEFFICIENT, CYM (MISSILE AXIS SYSTEM)

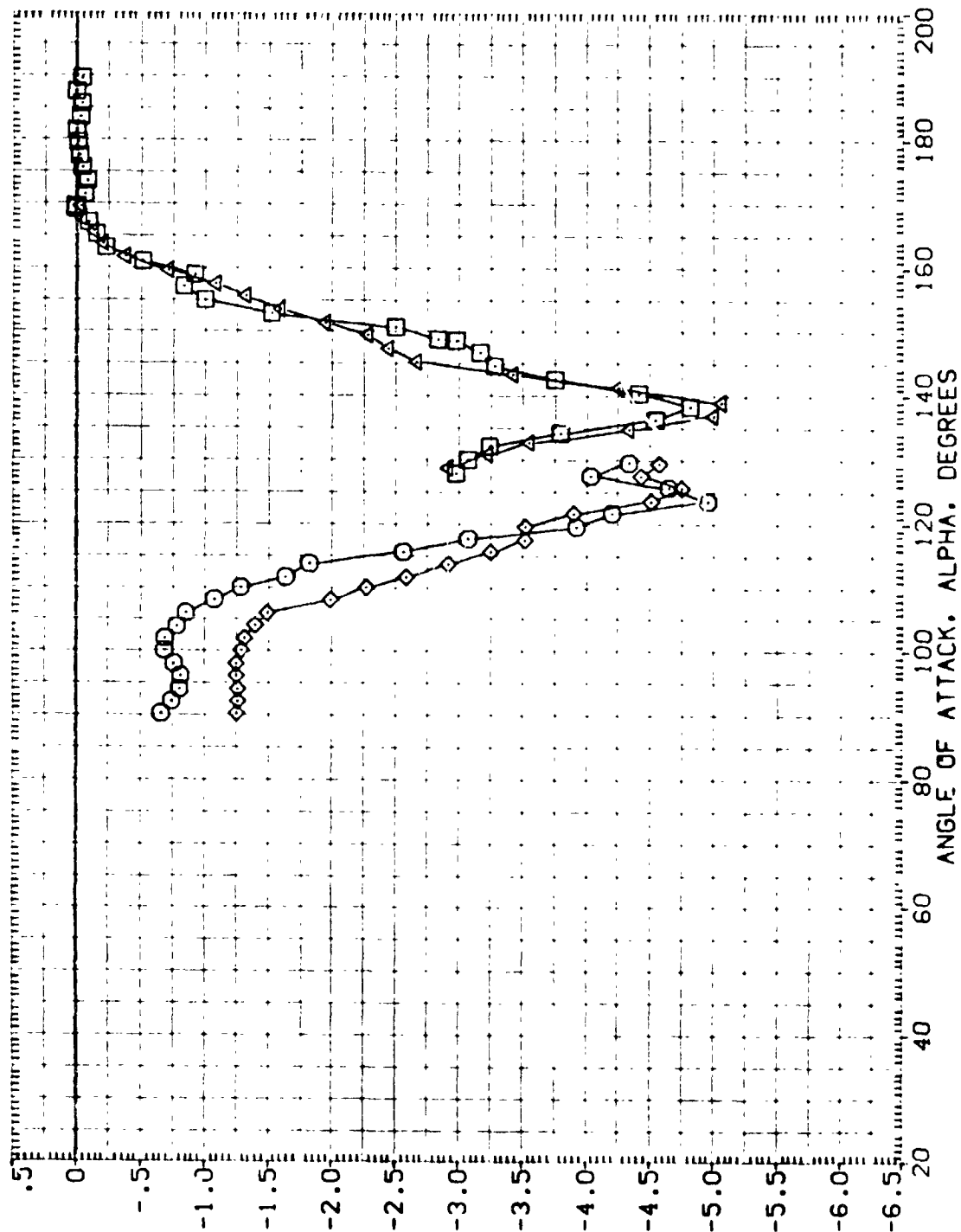


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(B)MACH = .60



REFERENCE INFORMATION  
 SREF .5000 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XPRP 5.7210 IN. XS  
 YPRP .0000 IN. YS  
 ZPRP .0000 IN. ZS  
 SCALE .0055

PHI  
 .000  
 .000  
 .000  
 .000

CON'IGURATION DESCRIPTION  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT804 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT804 (SABF) SRB WITH PROT. V/O HEAT S/O.  
 MSFC TVT804 (SABF) SRB WITH PROT. V/O HEAT S/O.

DATA SET SYMBOL  
 (AIH003)  
 (AIH003)  
 (AIH011)  
 (AIH011)

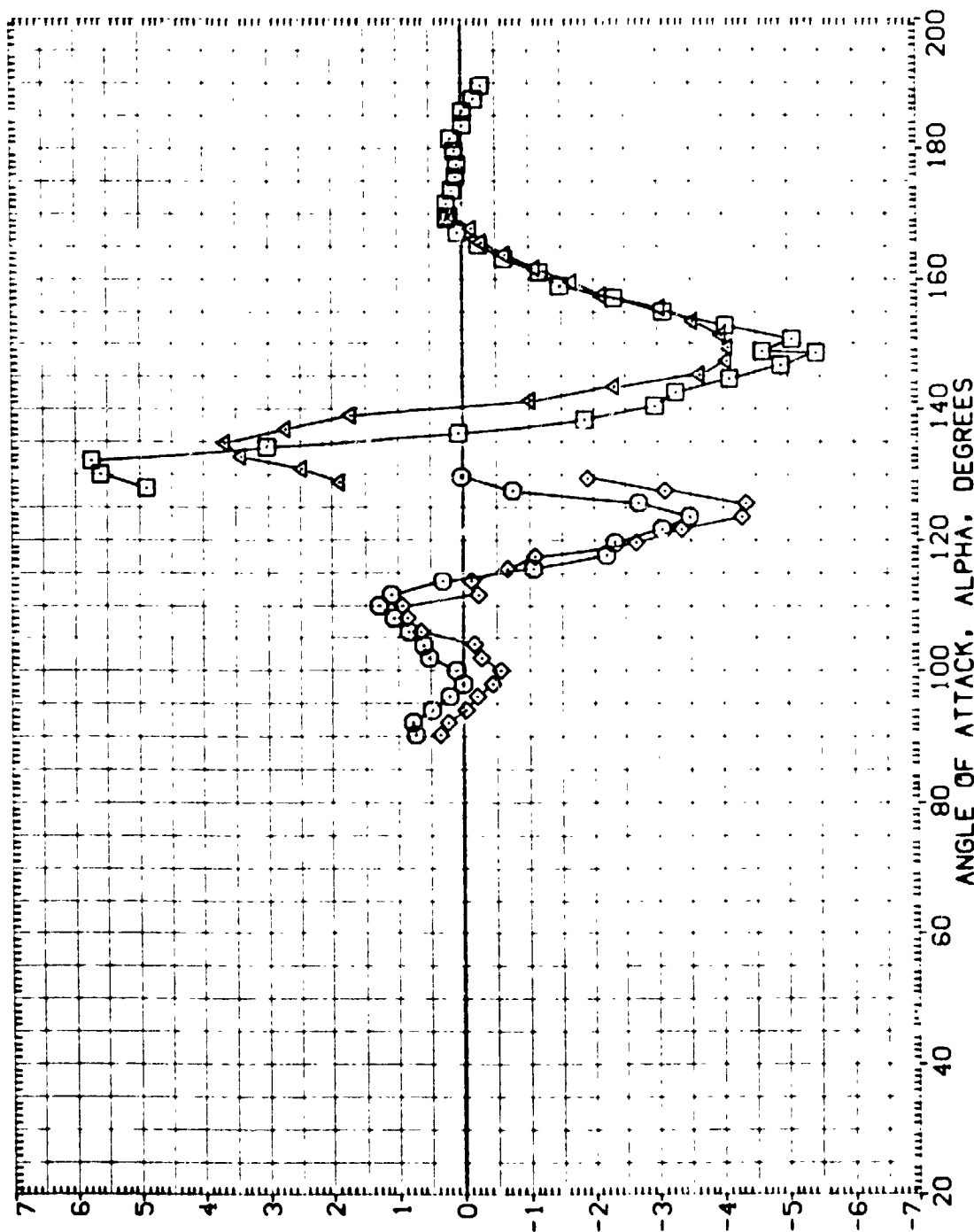


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(8)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .9000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	BREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	XREF 5.7210 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	YREF .0000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	ZREF .0000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	SCALE .0055

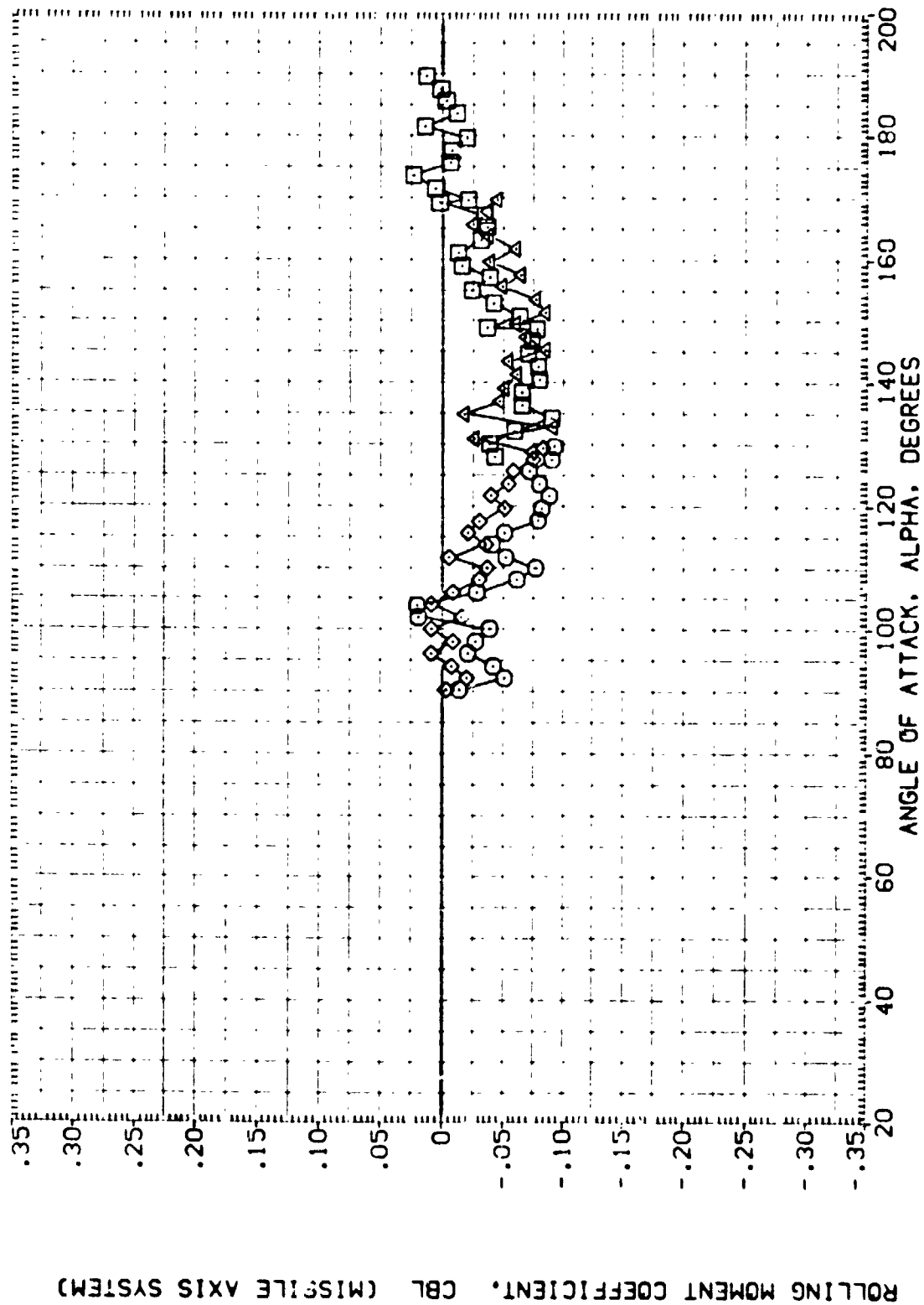


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(B) MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5000 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-0.	.000	SRREF .8000 IN.
(A1H011)	MSFC TVT624 (SABF) SRB WITH PROT. V/O HEAT S-0.	.000	XRREF 5.7210 IN.
			YRREF .0000 IN.
			ZRREF .0000 IN.
			SCALE .0055

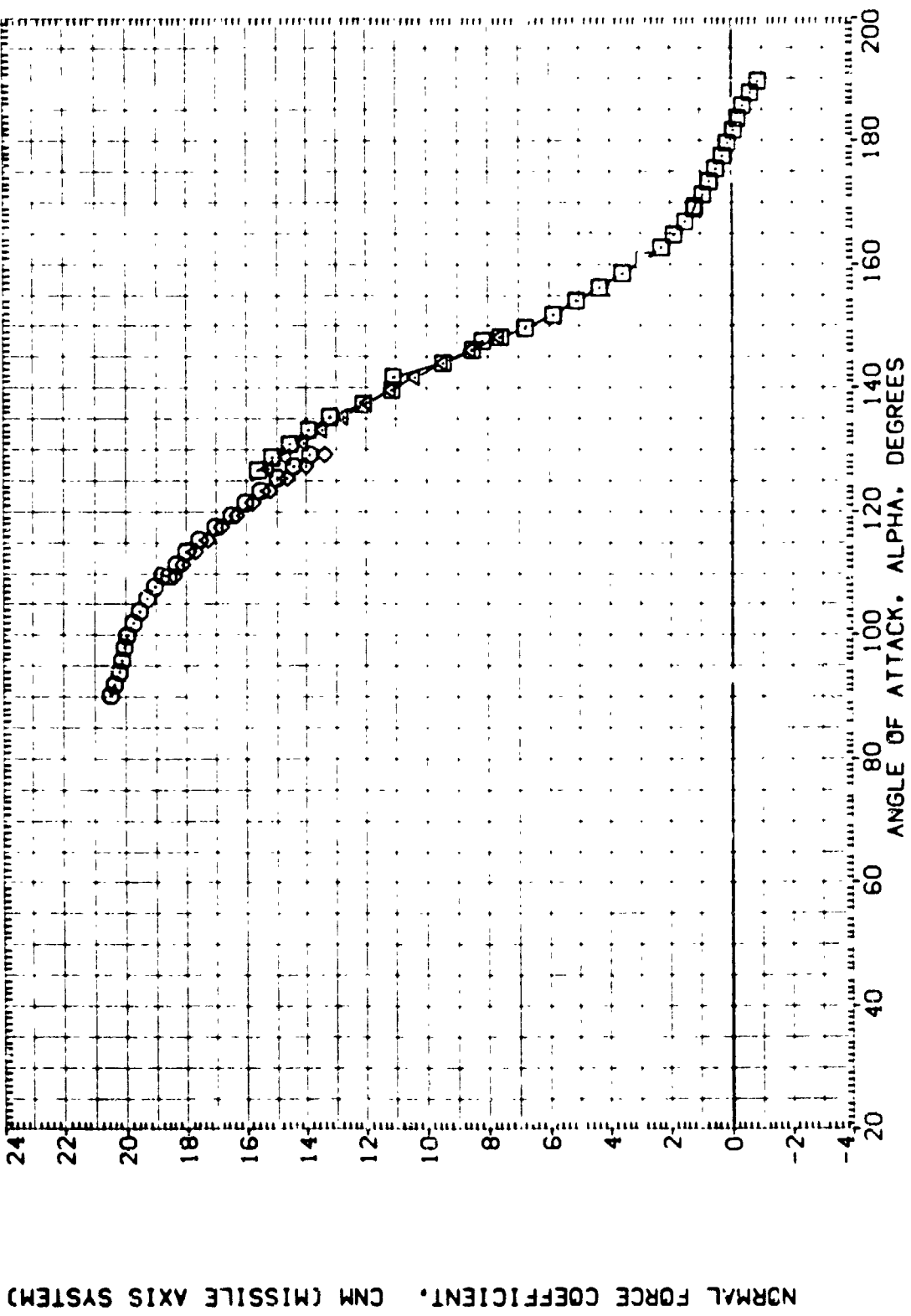


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 0)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	M3C T1604 (SABF) SRS WITH ALL PROTUBERANCES	.000	SREF .5030 SO. IN.
(A1H003)	M3C T1604 (SABF) SRS WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	M3C T1604 (SABF) CRS WITH PROT. V/D HEAT S/D.	.000	BREF .9000 IN.
(A1H011)	M3C T1604 (SABF) SRS WITH PROT. V/D HEAT S/D.	.000	XREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

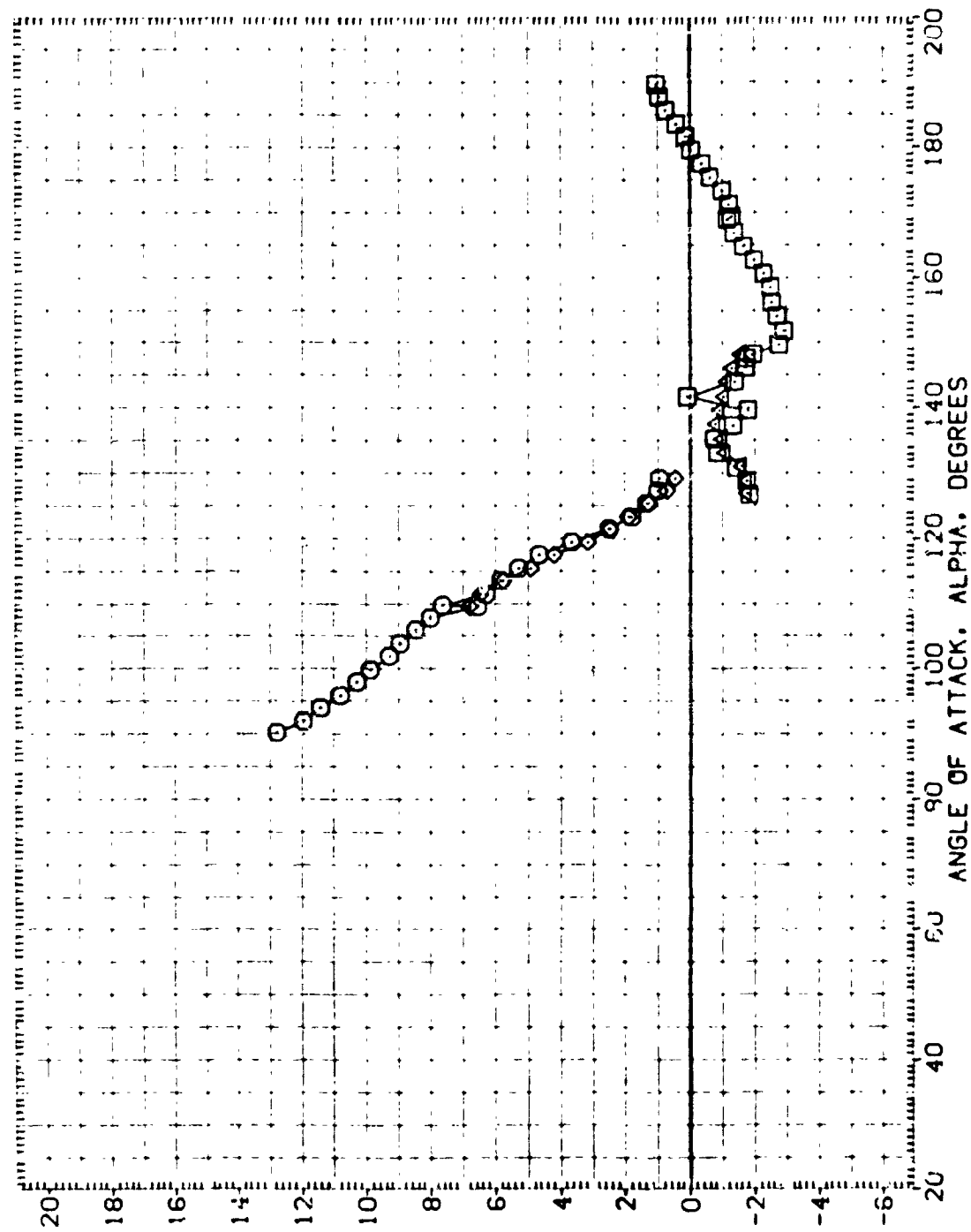


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. ( $\phi = 0$ )

$$(C)MACH = 1.20$$

DATA SET SYMBOL: (AIH003) (AIH003) (AIH011) (AIH011)

CONFIGURATION DESCRIPTION: MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH. MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.

PHI: .000 .000 .000 .000

REFERENCE INFORMATION: SREF 5030 SQ. IN. LREF 8000 IN. BREF 8000 IN. XMRP 5.7210 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .0055

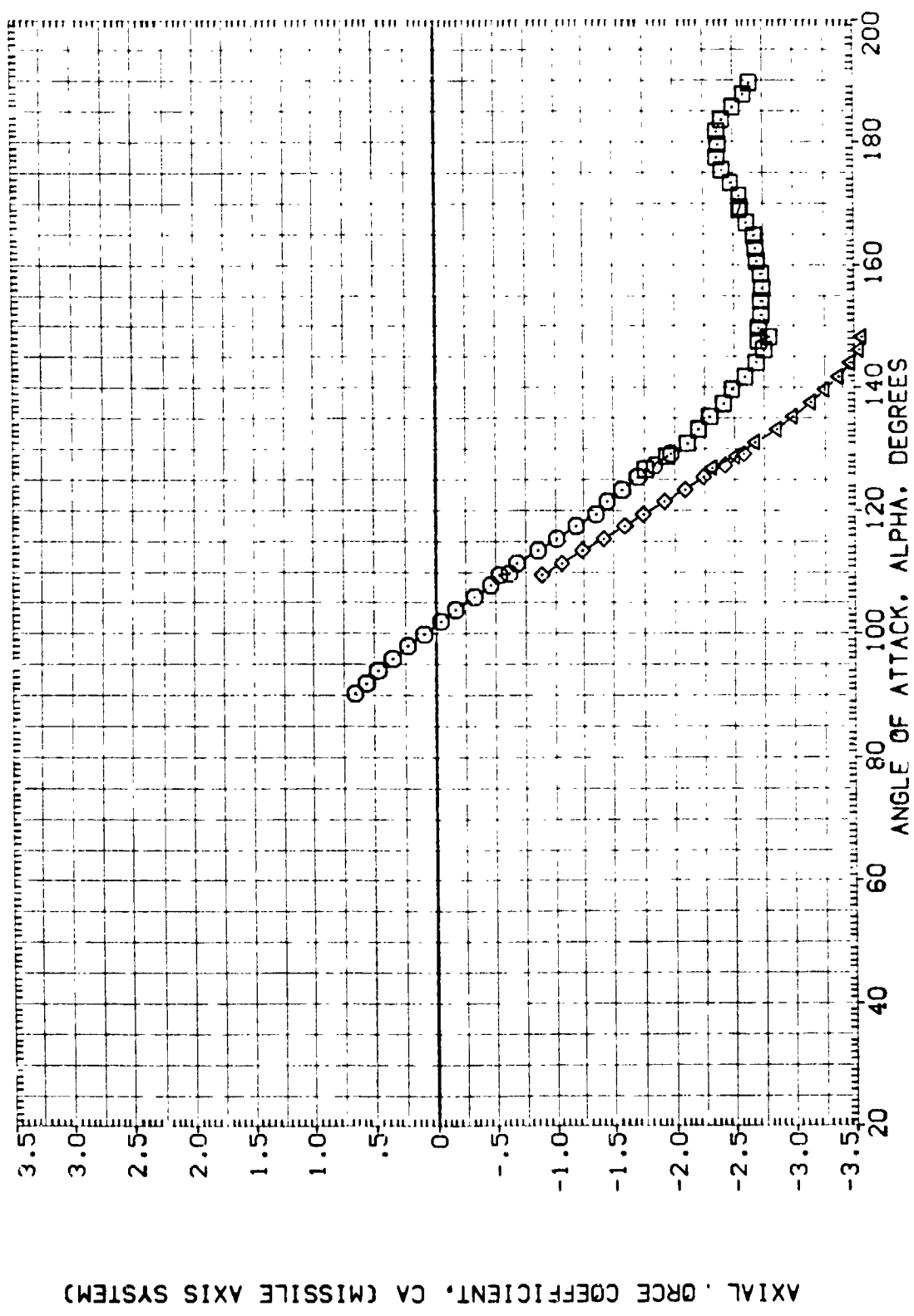


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

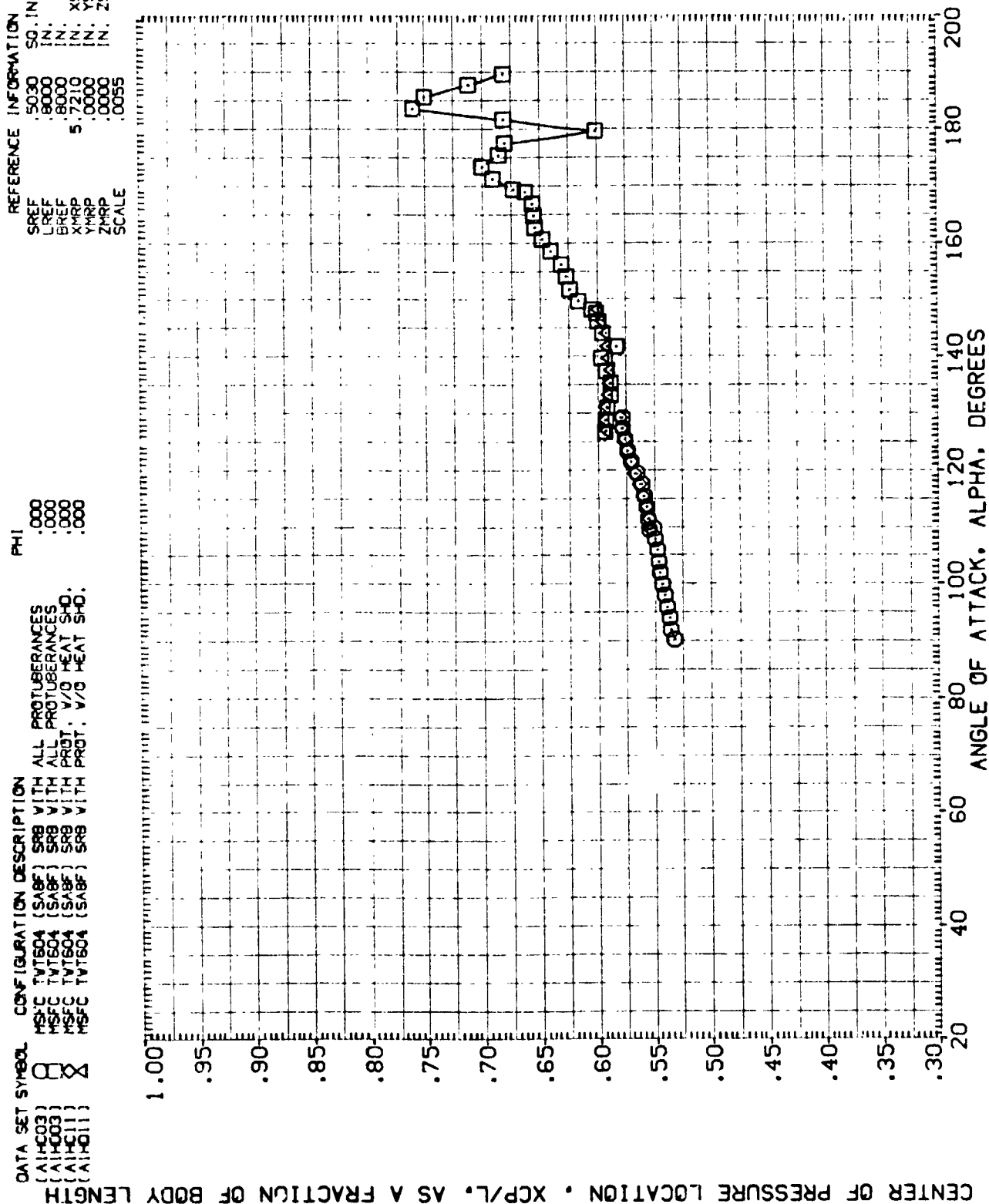


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(C)MACH = 1.20

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(A1H003) MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES

(A1H003) MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES

(A1H011) MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.

(A1H011) MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.

PHI .000

REFL XENCE INFORMATION

SREF .5037 SQ IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP S.7210 IN.

YMRP .0000 IN.

ZMRP .0000 IN.

SCALE .0055

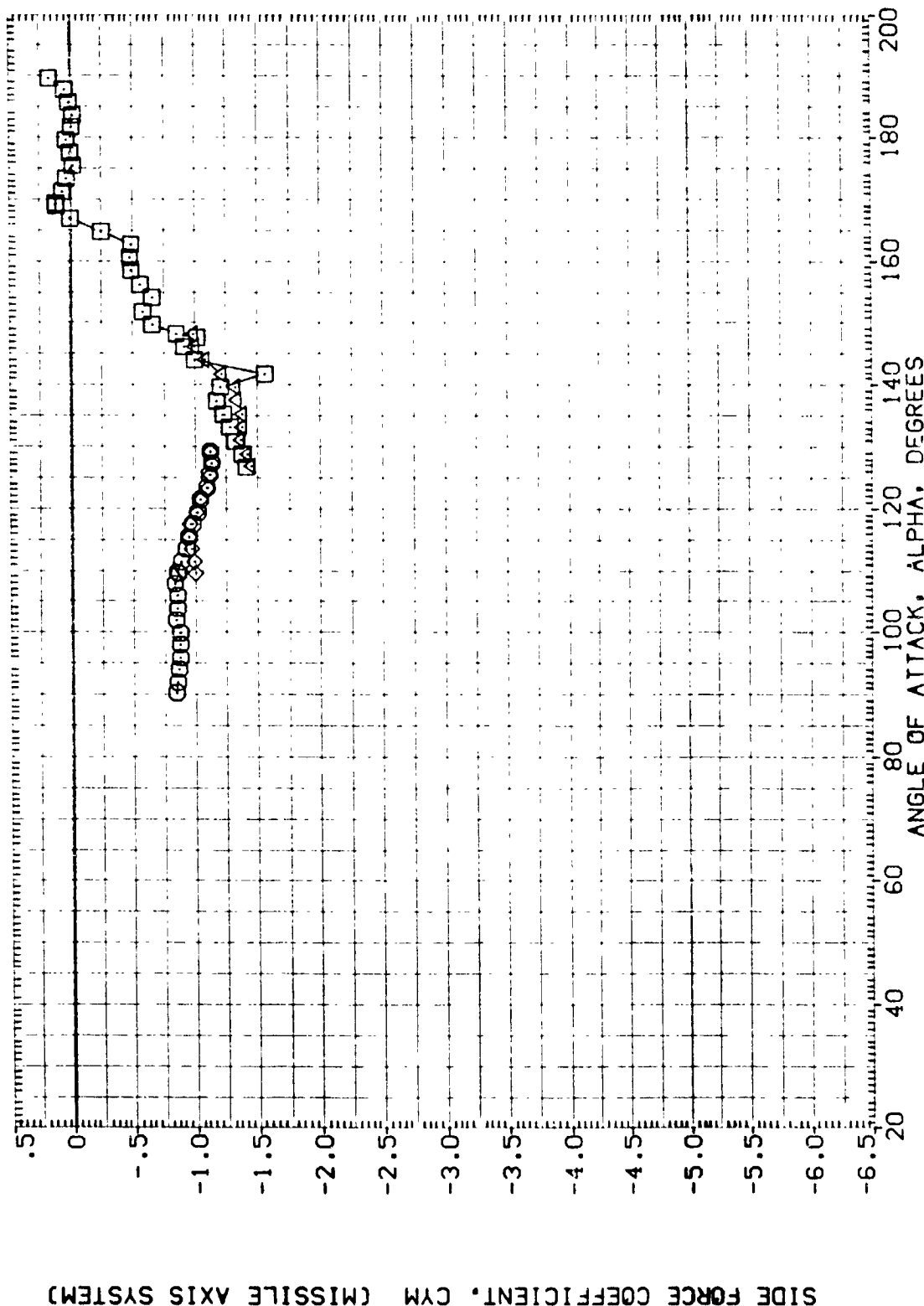


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(C)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1HC03)    MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1HC03)    MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1HC11)    MSFC TV1604 (SABF) SRB WITH PROT. V/O HEAT SHD.    .000

(A1HC11)    MSFC TV1604 (SABF) SRB WITH PROT. V/O HEAT SHD.    .000

YAWING MOMENT COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

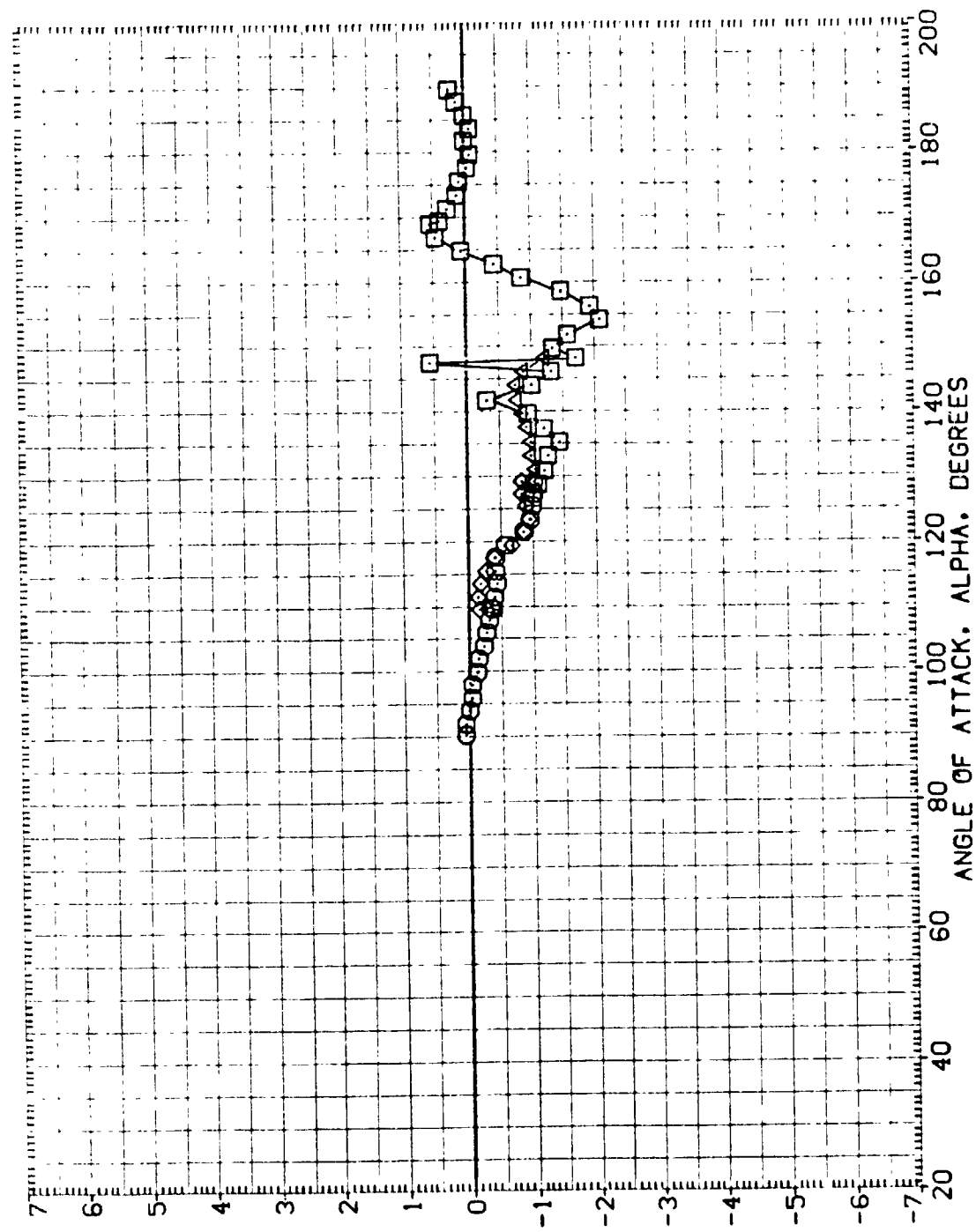


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(C)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	BREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	XTRP 5.7210 IN. XS
			YTRP .0000 IN. YS
			ZTRP .0000 IN. ZS
			SCALE .0055

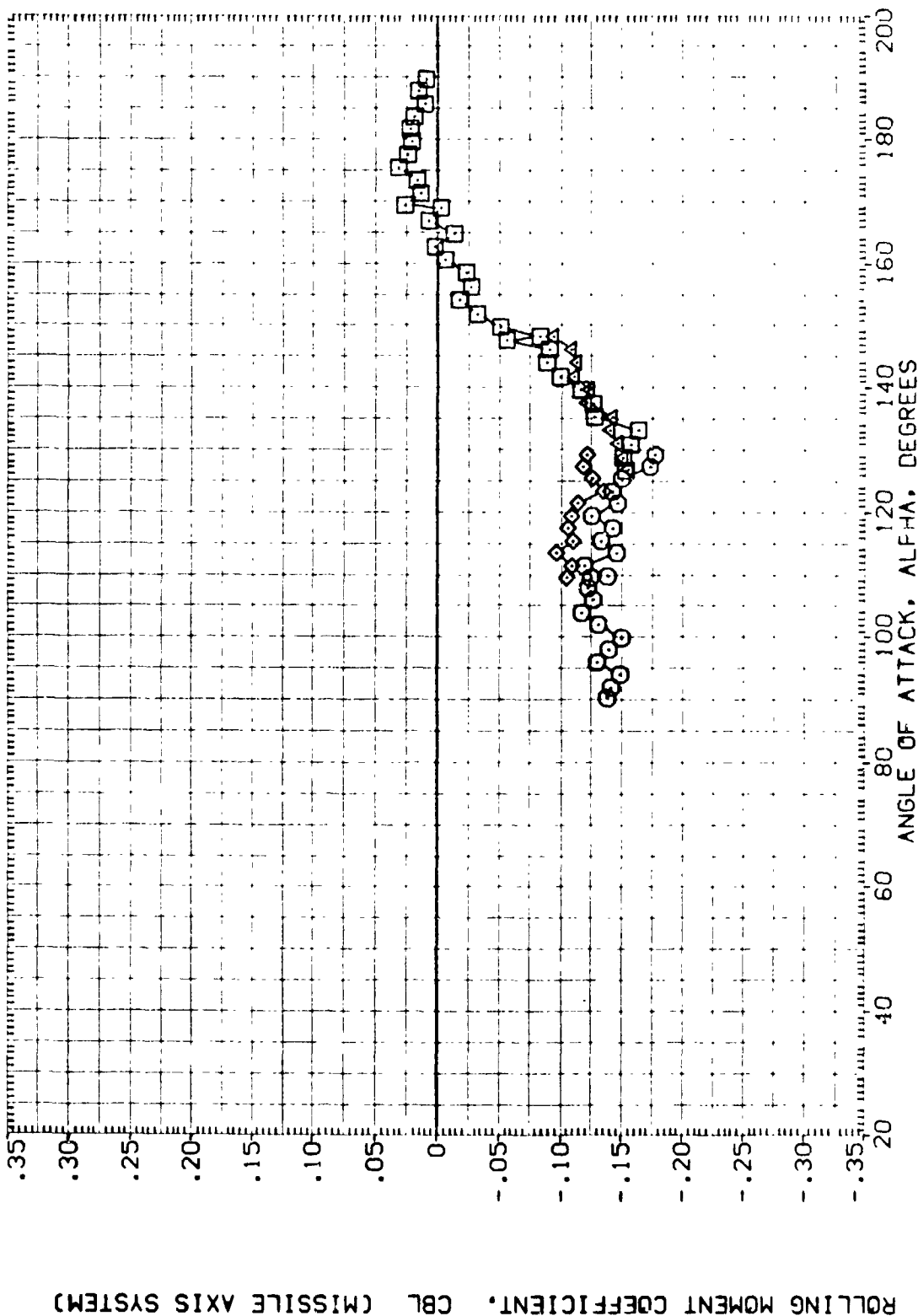


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(C)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H003)    MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1H003)    MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES    .000

(A1H011)    DATA NOT AVAILABLE    .000

(A1H011)    MSFC TV1604 (SABF) SRB WITH PROT. W/O HEAT SHD.    .000

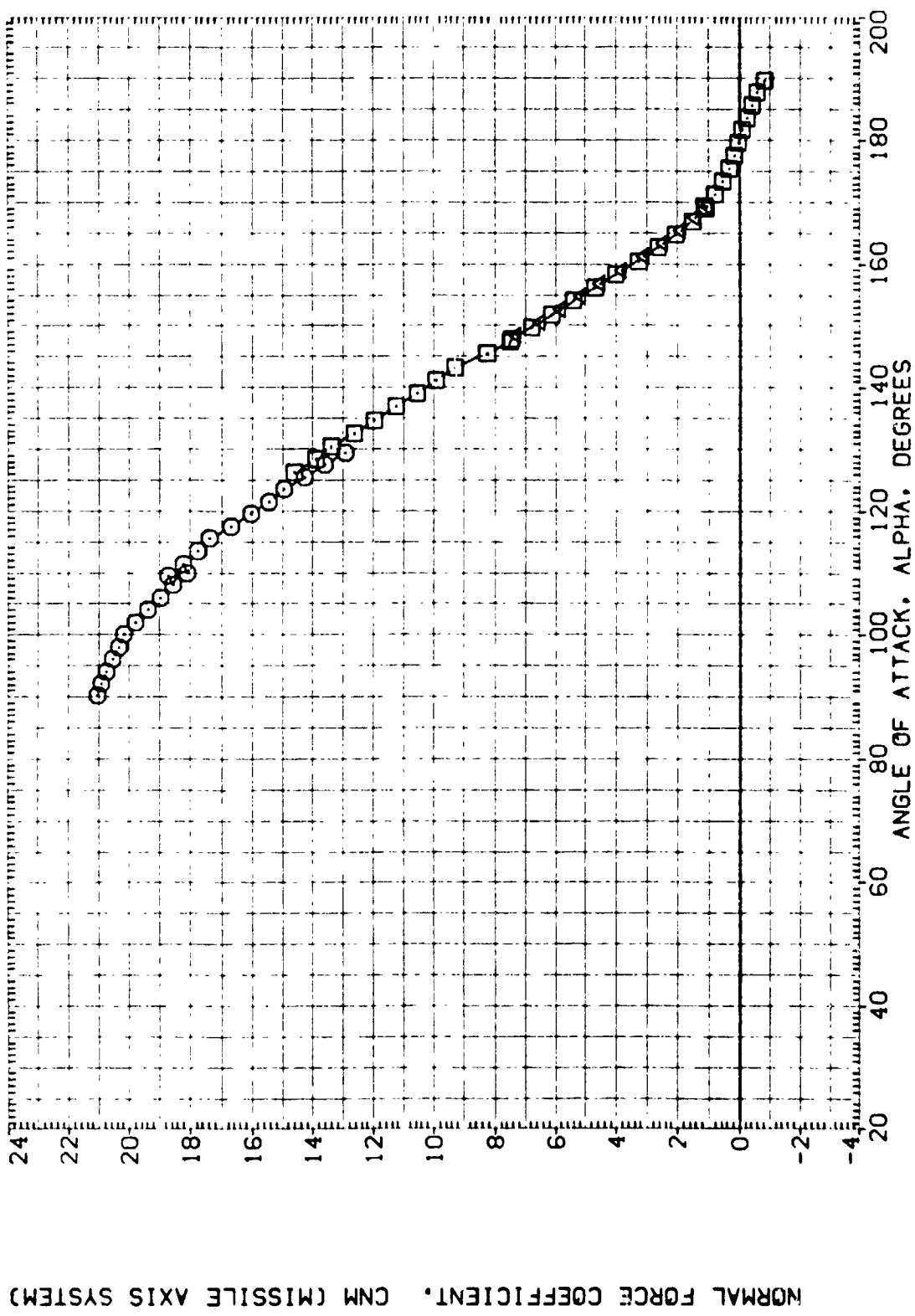


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(D)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	SREF .5030 IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	.000	LREF .8000 IN.
(A1H011)	DATA NOT AVAILABLE	.000	BREF .9400 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-40.	.000	5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

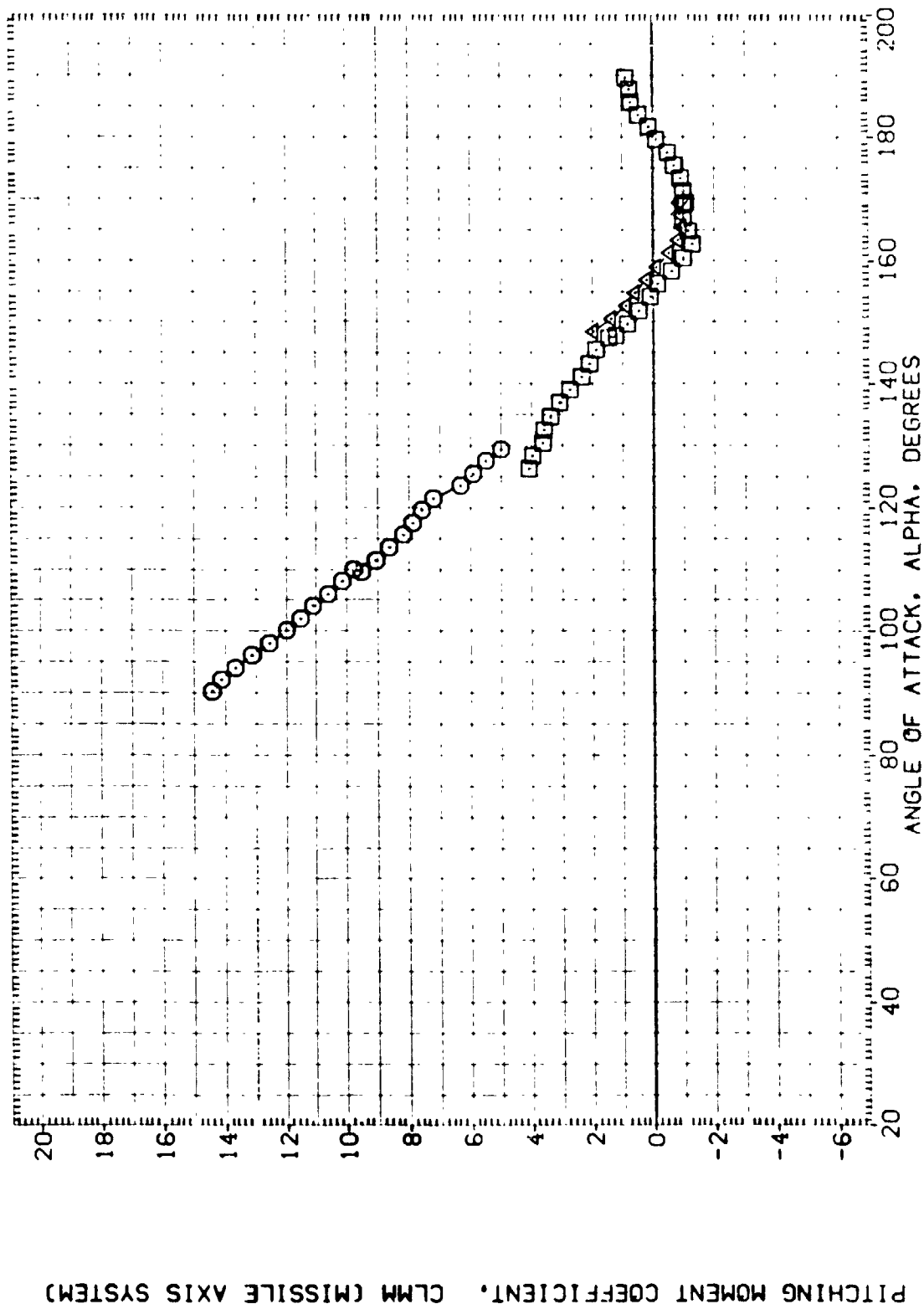


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(D)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(AIH011)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(AIH011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH-D.	.000	XPRP 5.7210 IN. XS
			YPRP .0000 IN. YS
			ZPRP .0000 IN. ZS
			SCALE .0055

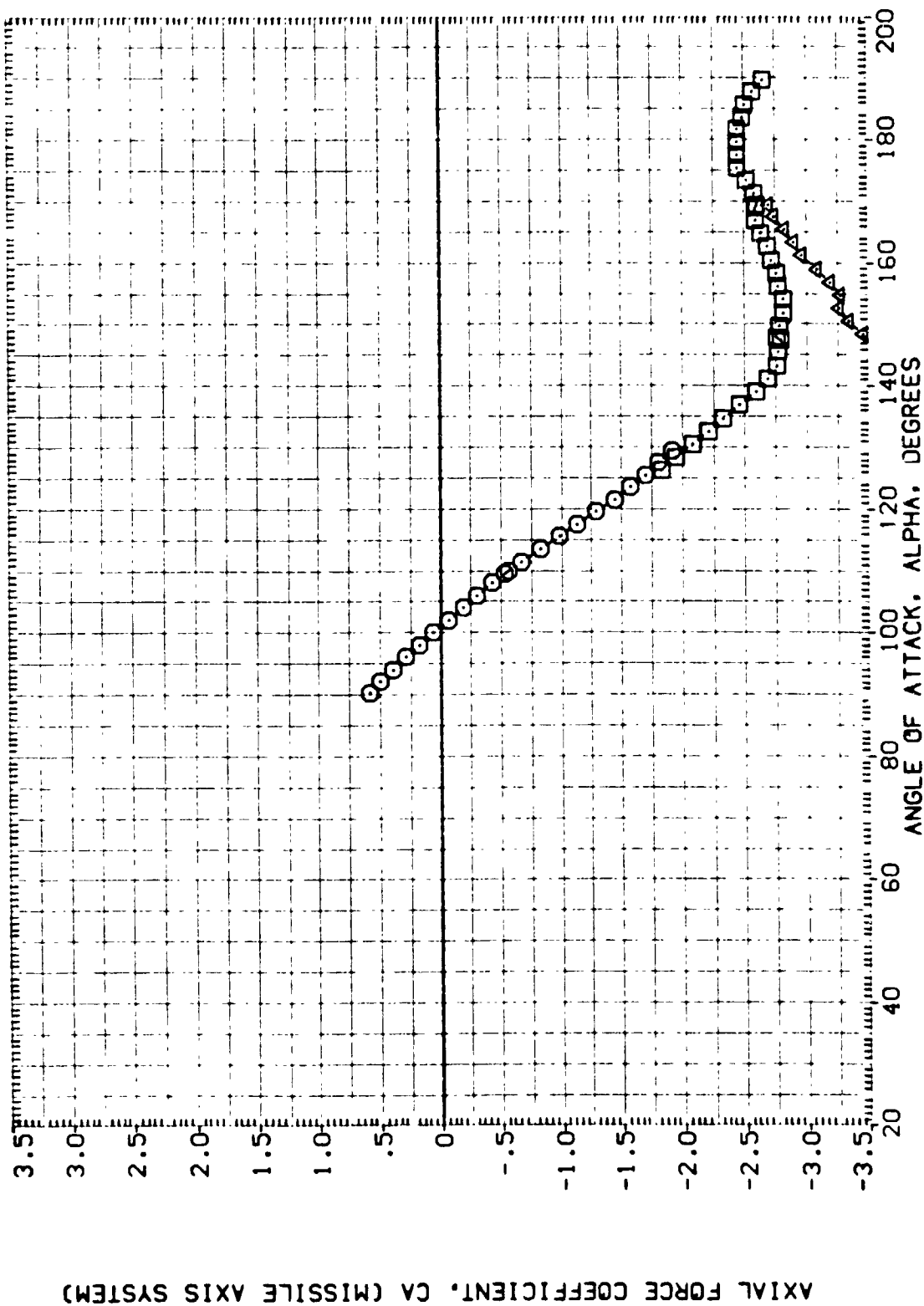


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(O) MACH = 1.96

DATA SET SYMBOLS: (A1H003) (A1H003) (A1H011) (A1H011)

CONFIGURATION DESCRIPTION: MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES DATA NOT AVAILABLE MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.

PHI: .000 .000 .000 .000

REFERENCE INFORMATION: SREF .5030 IN. LREF .8000 IN. BRREF .8000 IN. XHREF 5.7210 IN. YHREF .0000 IN. ZHREF .0000 IN. SCALE .0055

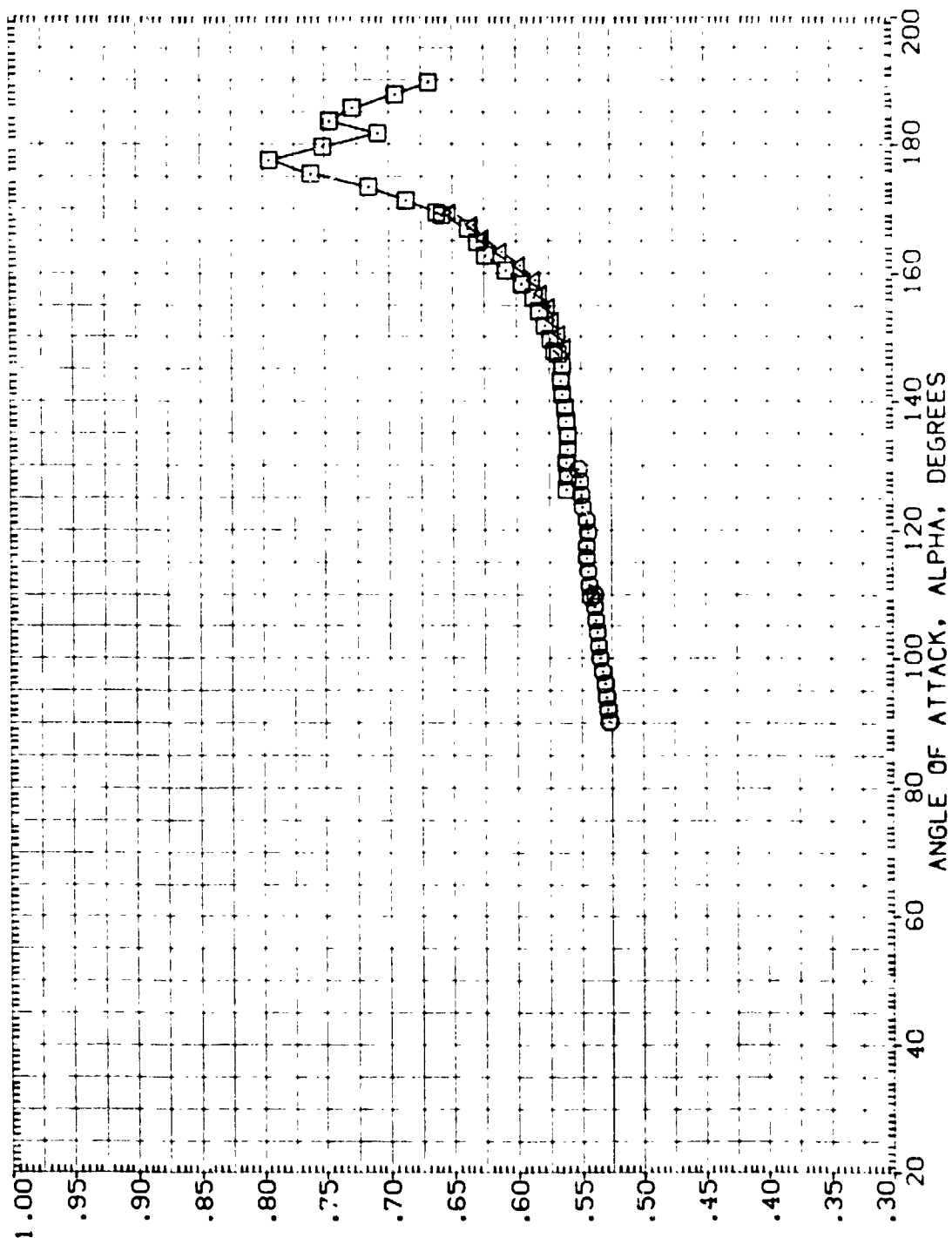


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(O)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(AIH003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 N.
(AIH011)	DATA NOT AVAILABLE	.000	BREF .8000 N.
(AIH011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-O.	.000	XMRP 5.7210 N. XS
			YMRP .0000 N. YS
			ZMRP .0000 N. ZS
			SCALE .0055

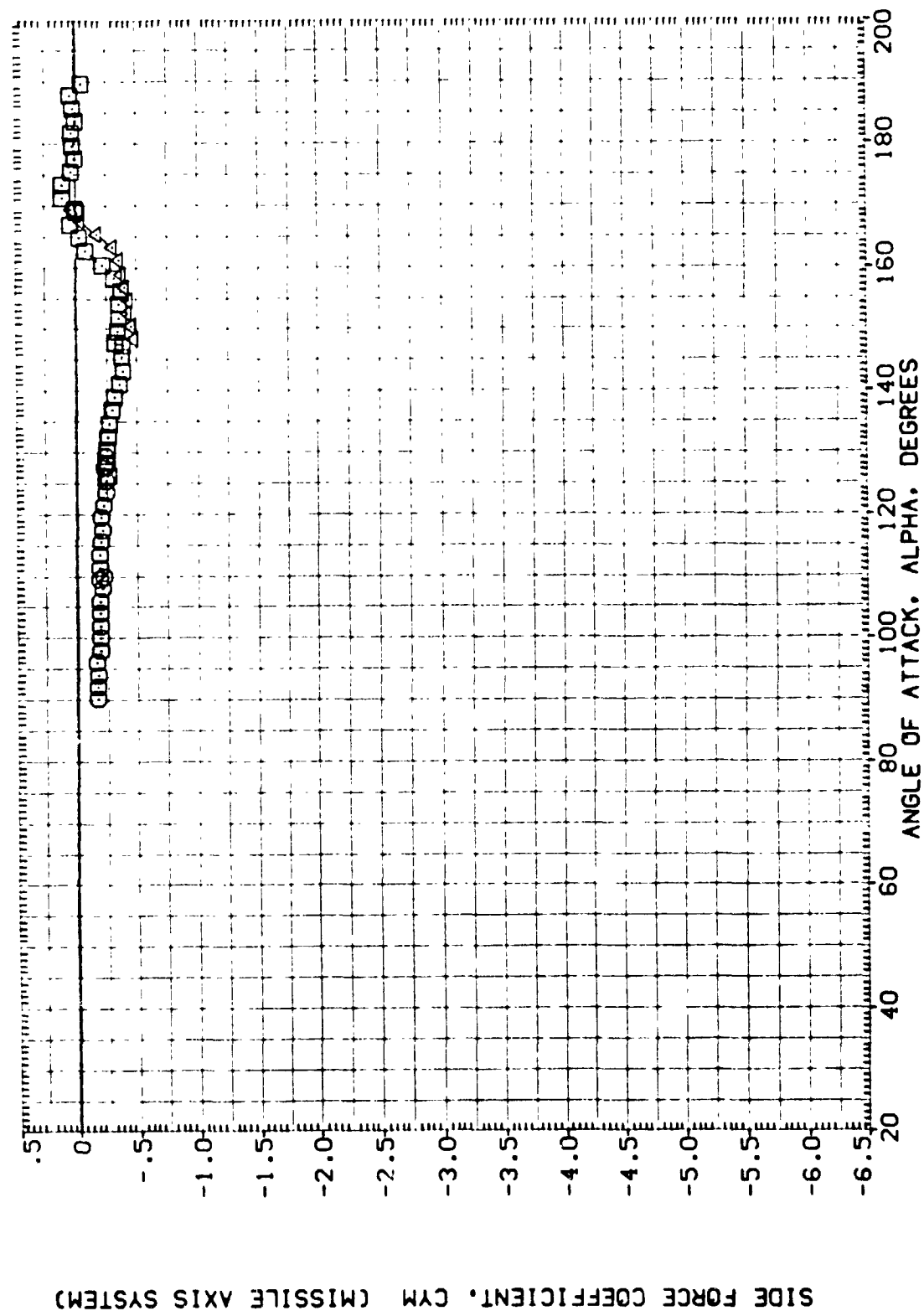


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 0)

(O)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HC03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .503C SQ.IN.
(A1HC03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1HC11)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1HC11)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S40.	.000	YMRP 5.7210 IN. XS
			ZMRP .0000 IN. YS
			SCALE .0055

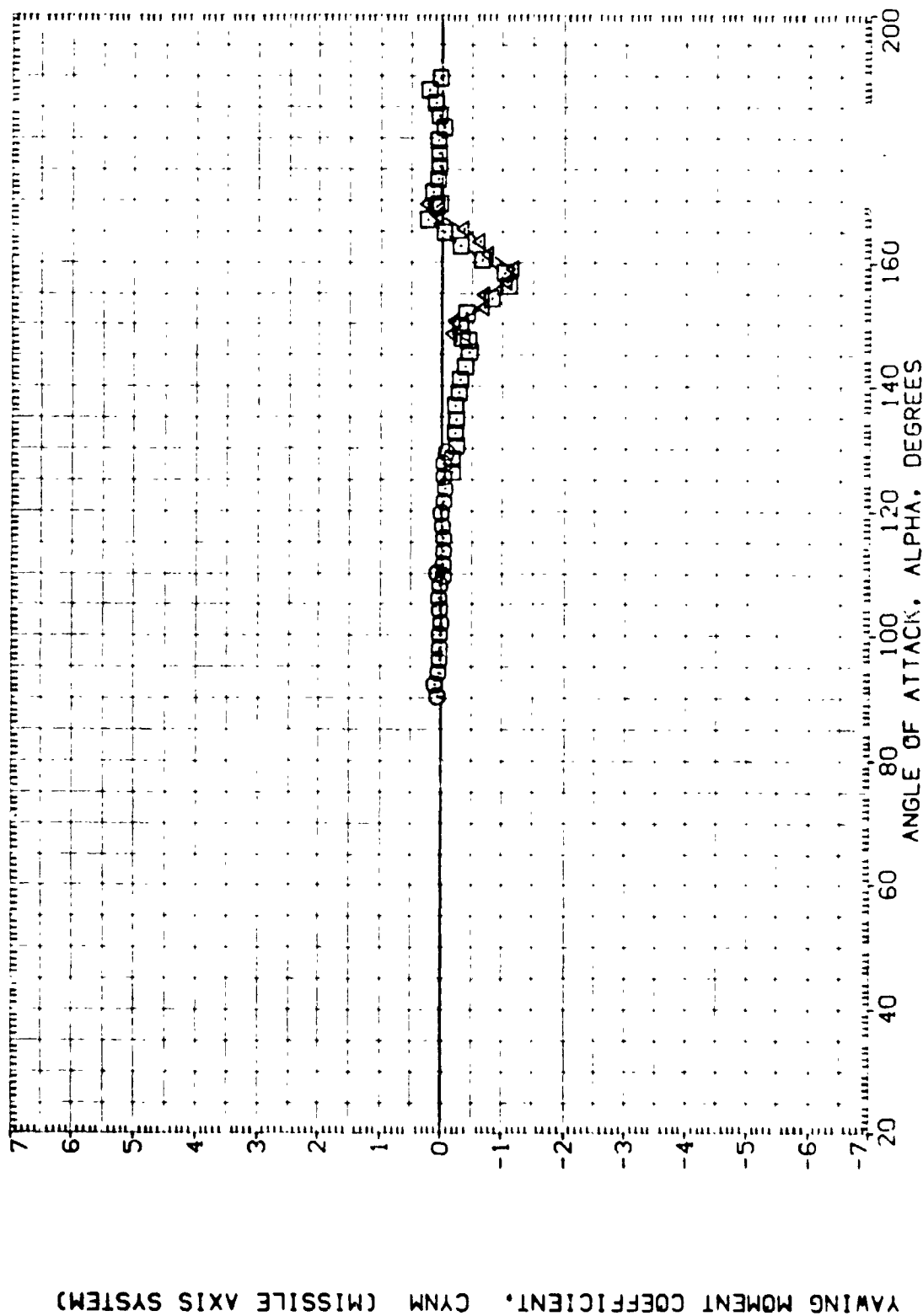


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTERISTICS  
(0)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1H011)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	.000	XREF 5.7210 IN. XS
			YREF .0000 IN. YS
			ZREF .0000 IN. ZS
			SCALE .0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

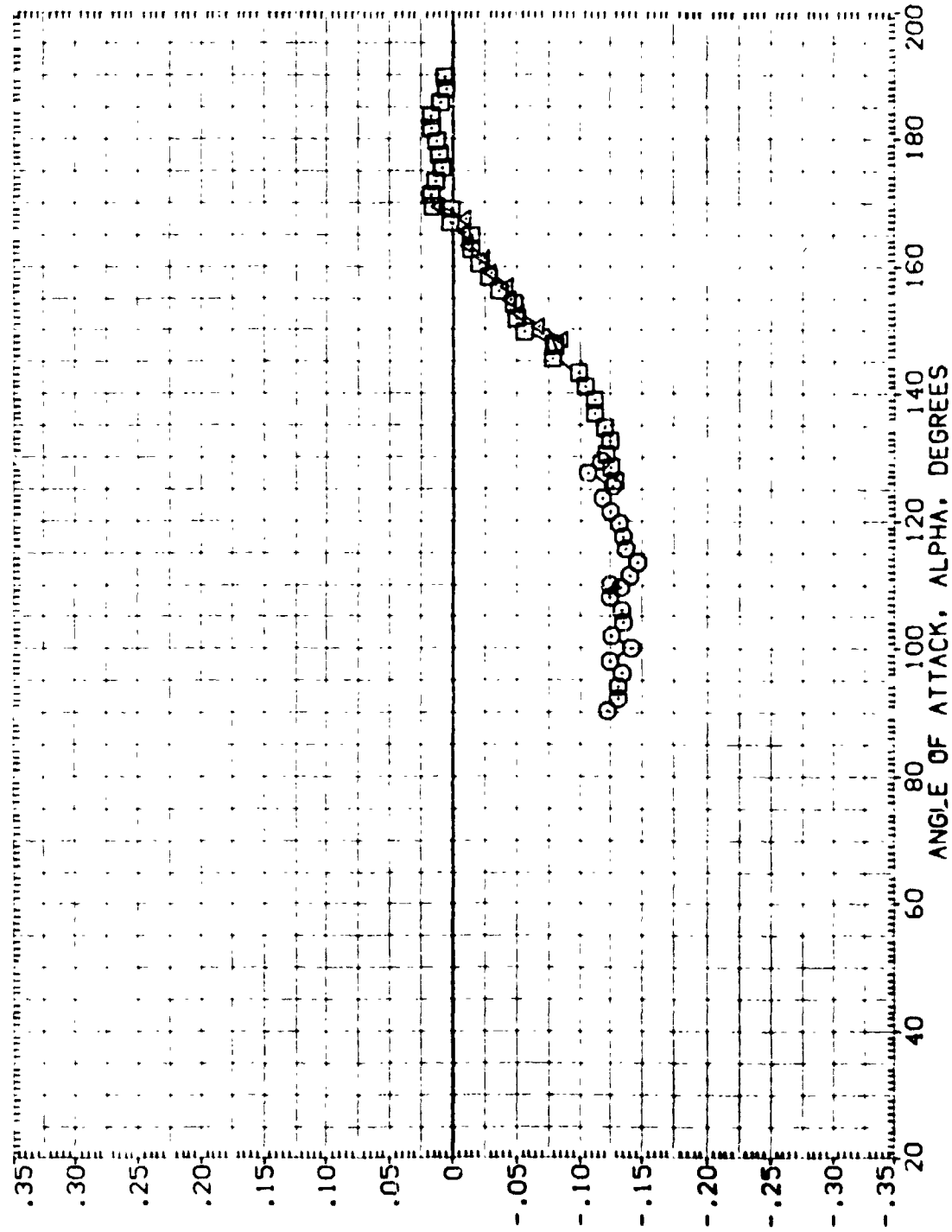


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(O)MACH = 1.96



DATA SET SYMBOL	CONF	DESCRIPTION	PHI	REFERENCE INFORMATION
(A1K003)	MSFC	TVTSD4 (SABF) SRB WITH ALL PROTRUSANCES	.000	SREF .5030 IN.
(A1K003)	MSFC	TVTSD4 (SABF) SRB WITH ALL PROTRUSANCES	.000	LREF .8000 IN.
(A1K011)	DATA	NOT AVAILABLE	.000	BREF .8000 IN.
(A1K011)	MSFC	TVTSD4 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000	XMRP 5.7210 IN. XS
				YMRP .0000 IN. YS
				ZMRP .0000 IN. ZS
				SCALE .0055

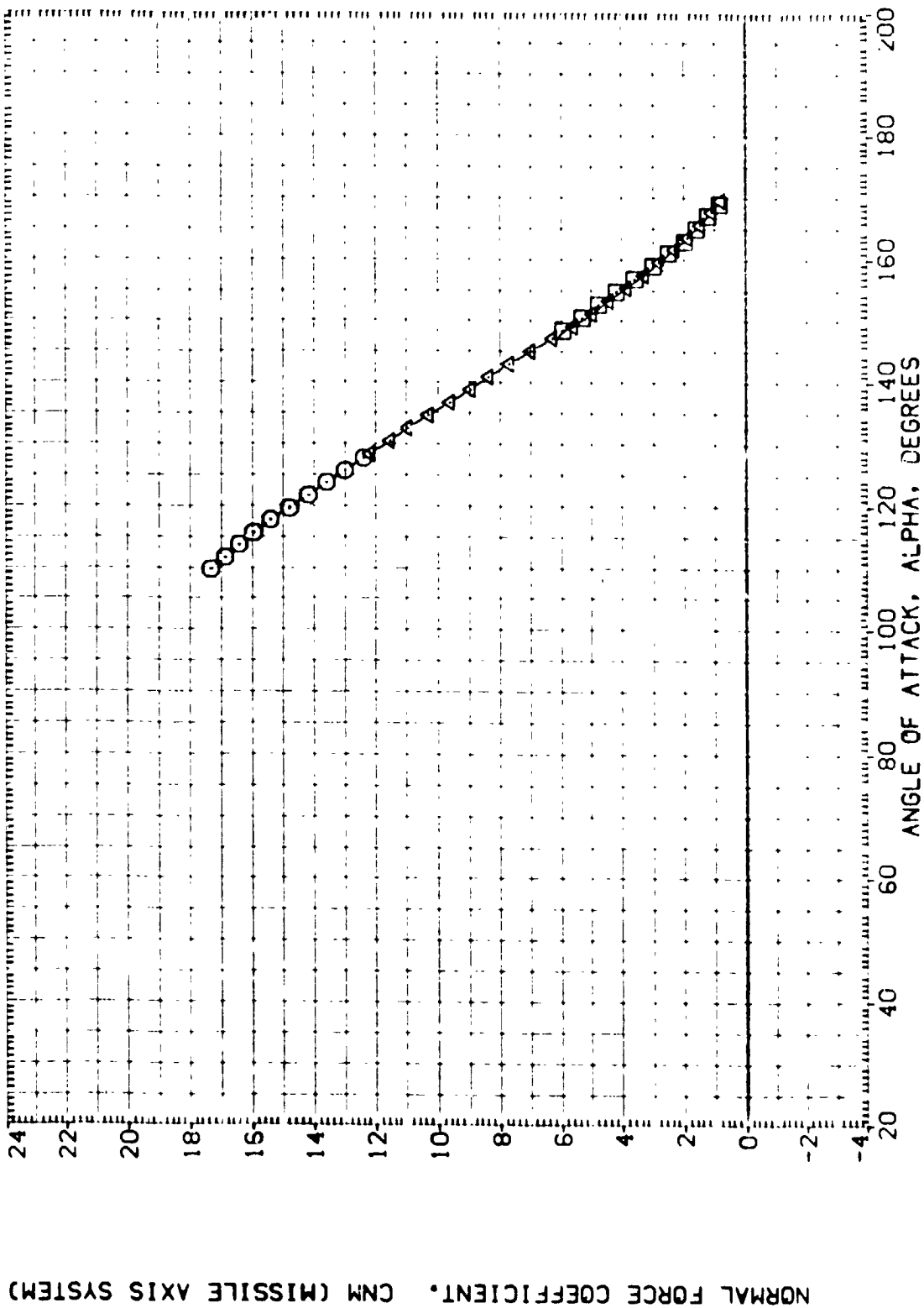


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER, (PHI = 0)

(E)MACH = 3.48

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHC03)	□	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 SQ. IN.
(AIH003)	○	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(AIHC11)	×	DATA NOT AVAILABLE	.000	BREF 5.7210 IN. XS
(AIH011)	×	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	.000	XMRP .0000 IN. YS
				ZMRP .0000 IN. ZS
				SCALE .0055

PITCHING MOMENT COEFFICIENT, CLMM (MISSILE AXIS SYSTEM)

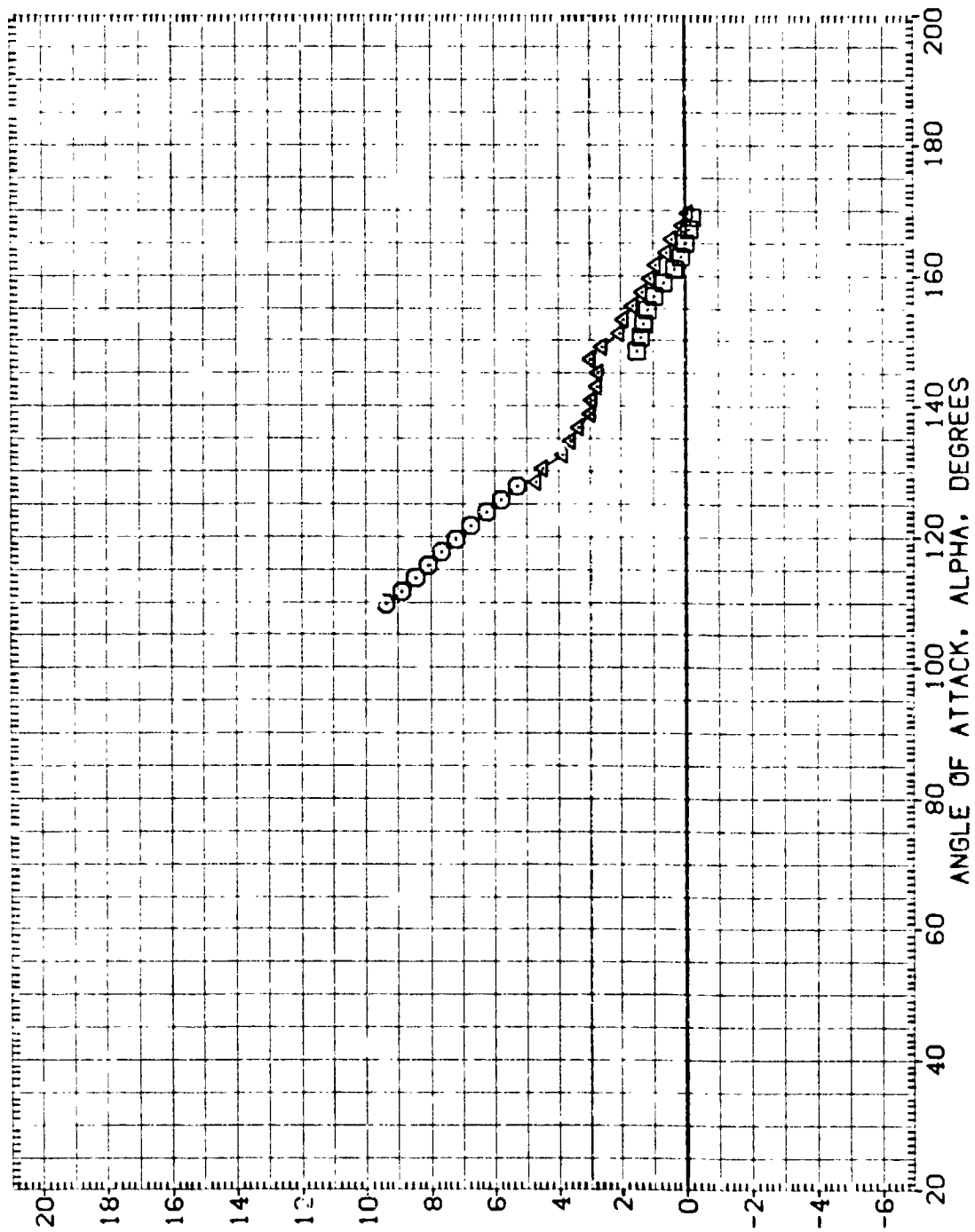


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(E)MACH = 3.48

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HC03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	SREF .5030 IN.
(A1HC03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	.000	LREF .8000 IN.
(A1HC11)	DATA NOT AVAILABLE	.000	BREF .8000 IN.
(A1HC11)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.	.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

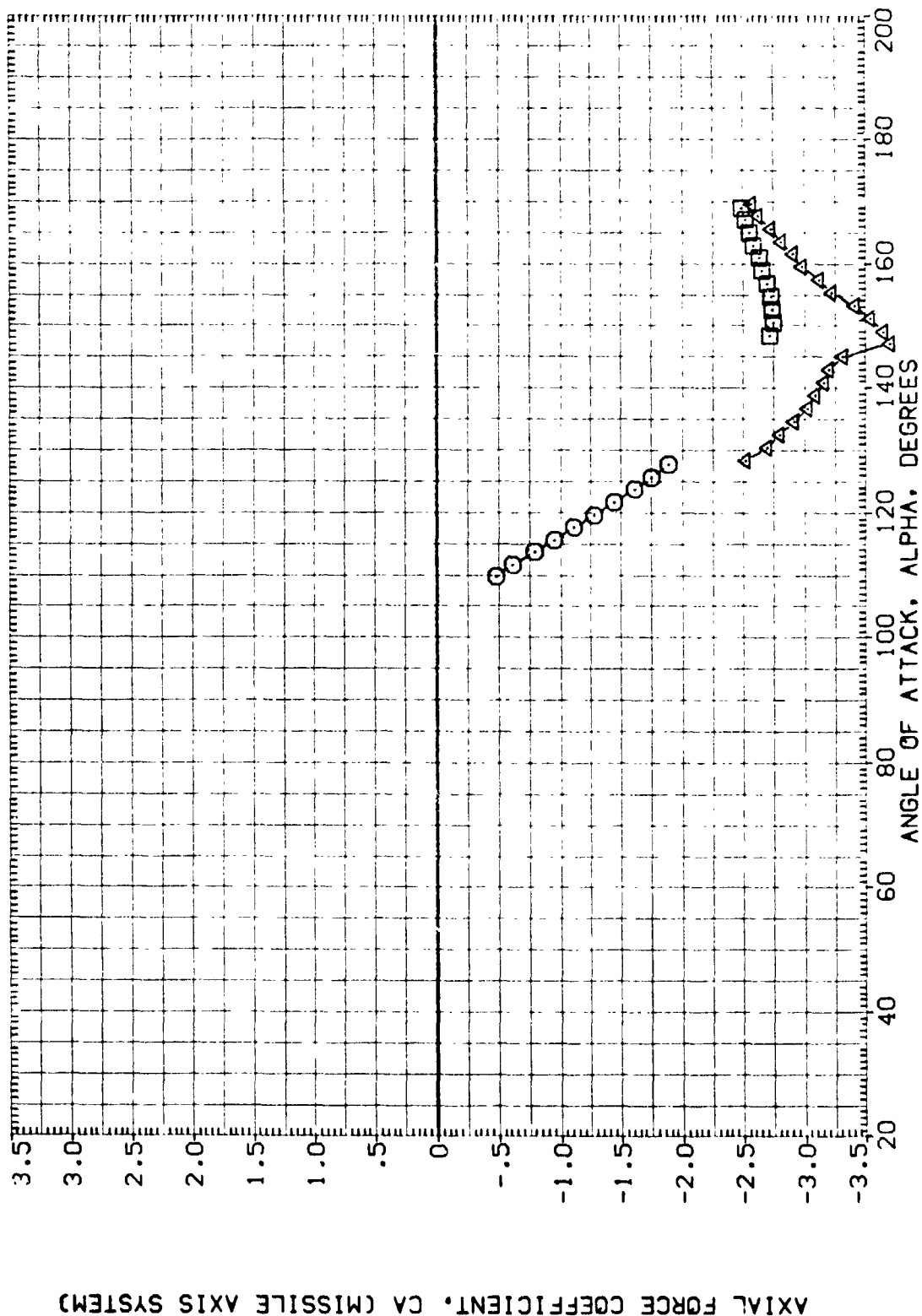


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

(E)MACH = 3.48



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI      REFERENCE INFORMATION

(AIHCO3)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      SREF      .5030      SQ. IN.

(AIHCO3)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000      LREF      .8000      IN.

(AIHCO3)      DATA NOT AVAILABLE      .000      BRFP      .8000      IN.

(AIHCO3)      MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.      .000      XMRP      5.7210      IN. XS

(AIHCO3)                                         YMRP      .0000      IN. YS

(AIHCO3)                                         ZMRP      .0000      IN. ZS

(AIHCO3)                                         SCALE      .0055

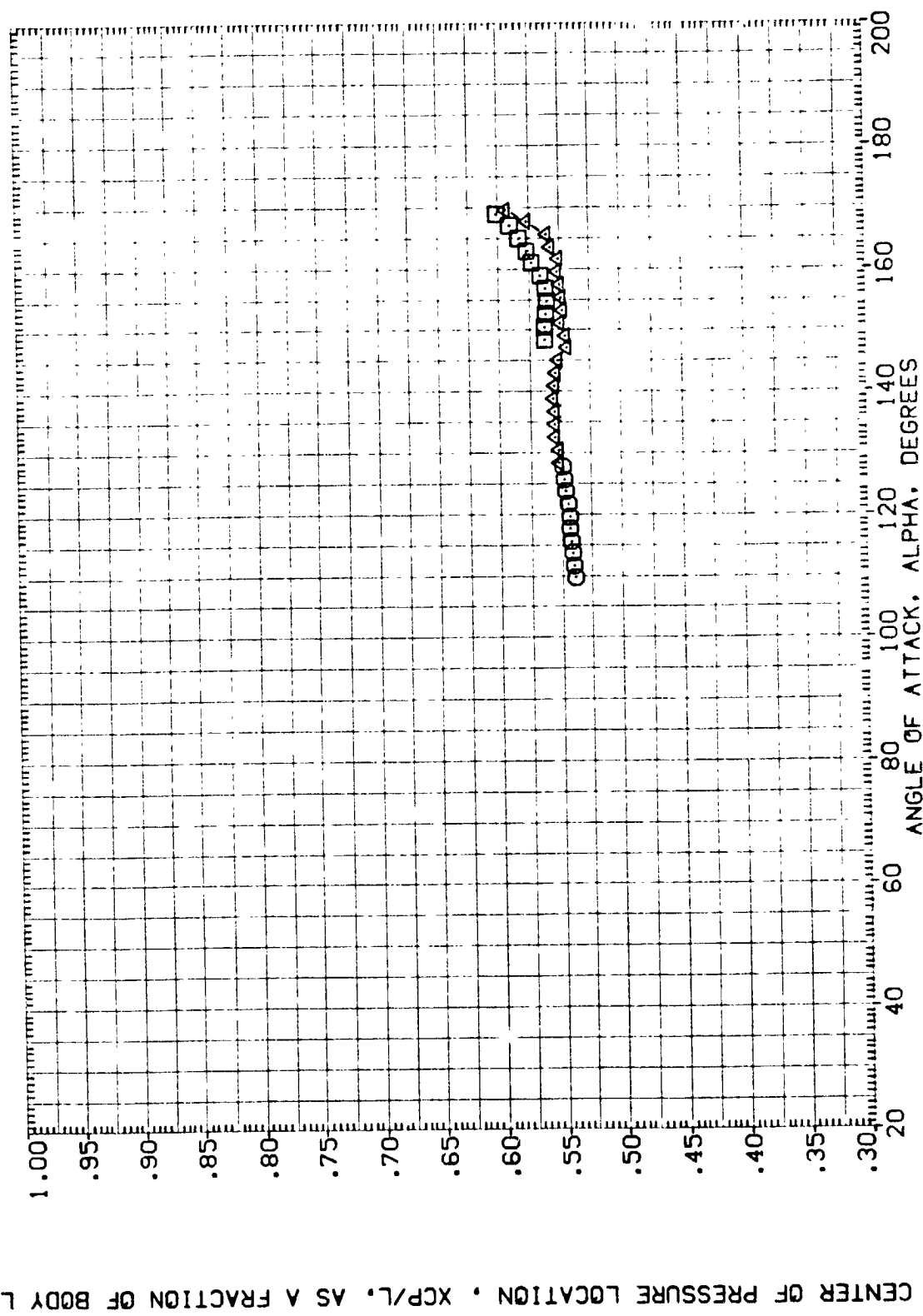


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 0)

REFERENCE INFORMATION

SREF	5030	IN.
LREF	8000	IN.
BREF	8000	IN.
XRRP	5.7210	IN.
YRRP	.0000	IN.
ZRRP	.0000	IN.
SCALE	.0055	

PHI

.000
.000
.000

DATA SET SYMBOL

MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
DATA NOT AVAILABLE	
MSFC TVT604 (SABF)	SRB WITH PROT. V/O HEAT SHD.

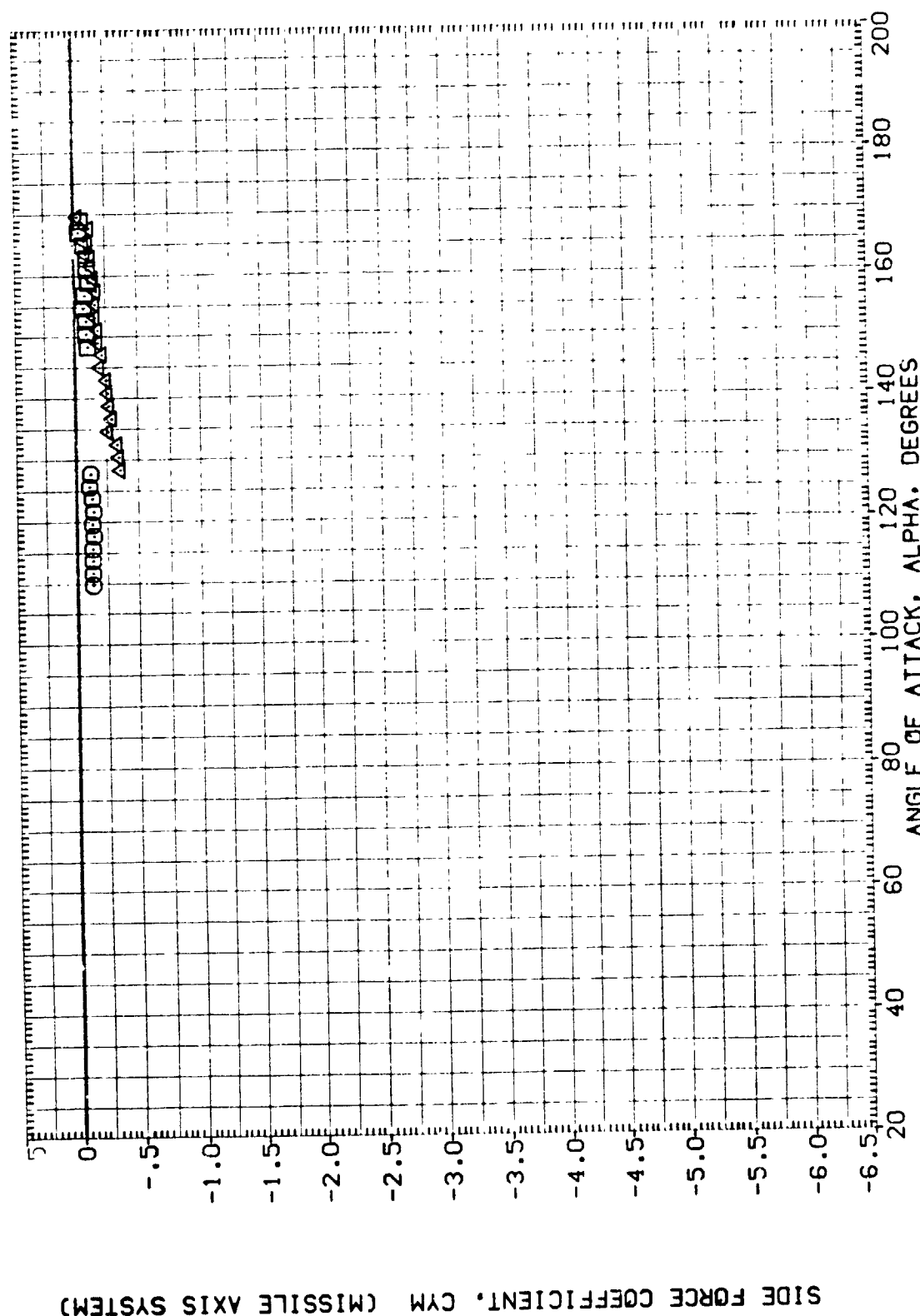


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 0)

(E)MACH = 3.48

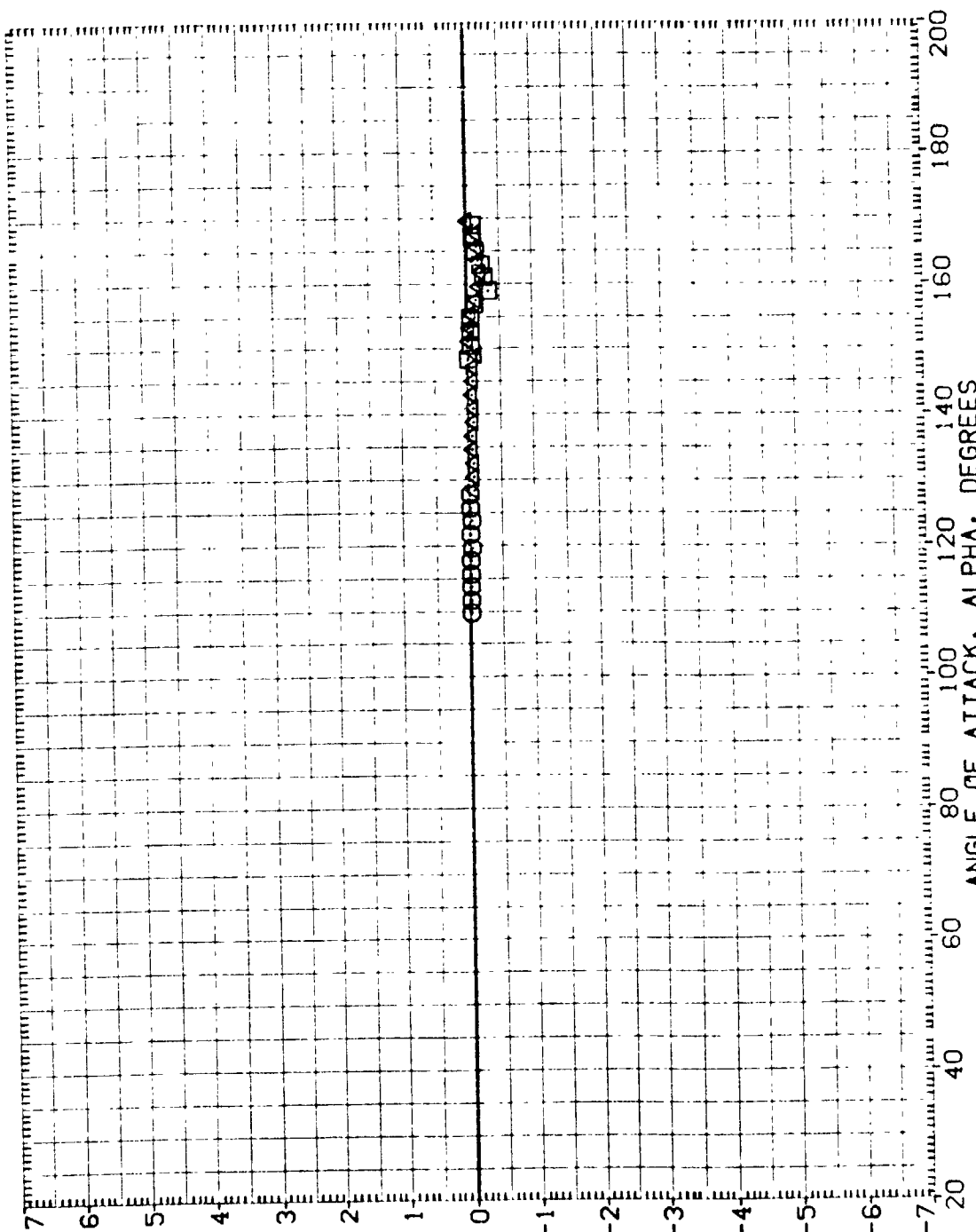
REFERENCE INFORMATION

SREF	.5030	SQ. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN. XS
YMRP	.0000	IN. YS
ZMRP	.0000	IN. ZS
SCALE	.0055	

PHI .000  
.000  
.000

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
(A1H003)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
(A1H011)	DATA NOT AVAILABLE
(A1H011)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.



YAWING MOMENT COEFFICIENT, CYNM (MISSILE AXIS SYSTEM)

FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI -0)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000

(A1H003)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      .000

(A1H011)      DATA NOT AVAILABLE      .000

(A1H011)      MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.      .000

REFERENCE INFORMATION

SREF      5030      50. IN.

LREF      .8000      IN.

BREF      .8000      IN.

XMRP      5.7210      IN. XS

YMRP      .0000      IN. YS

ZMRP      .0000      IN. ZS

SCALE      .0055

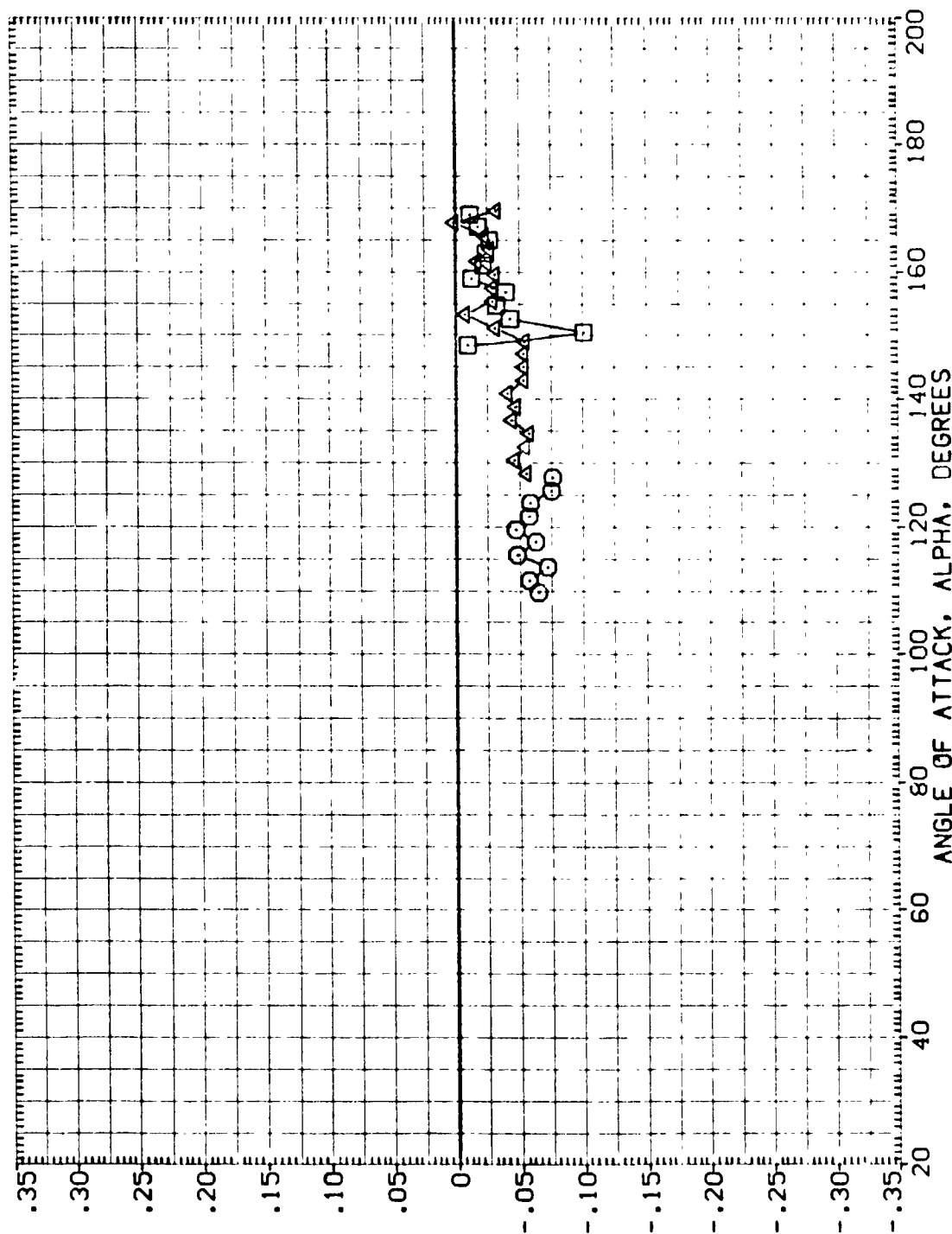


FIGURE 30. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 0)

(E)MACH = 3.48

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIH005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(AIH005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(AIH012)      DATA NOT AVAILABLE      90.000

(AIH012)      MSFC TVT604 (SABF) SRB WITH PROT. V/D HEAT S-H.      90.000

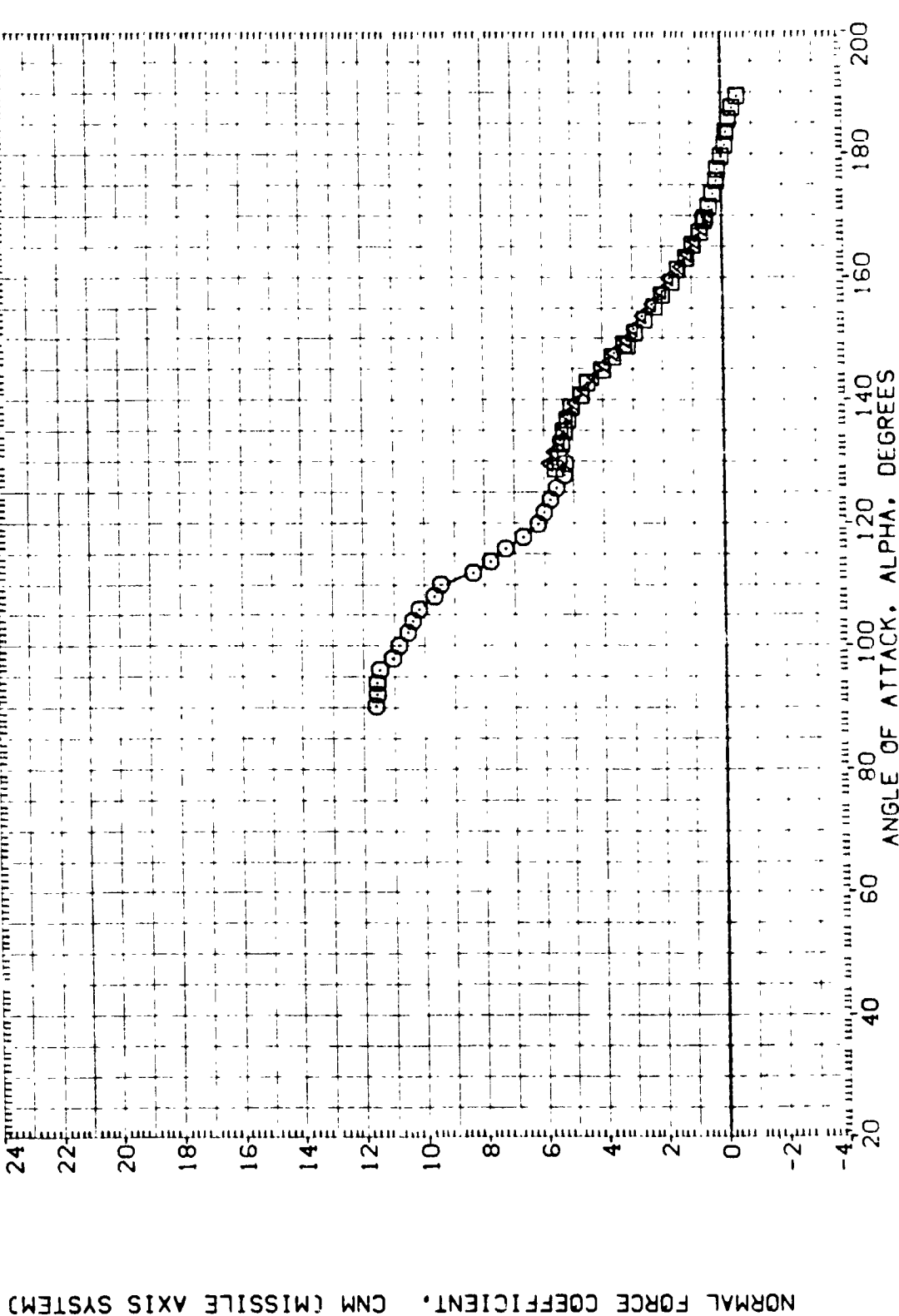


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI
(AIHC03)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000
(AIHC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000
(AIHC12)	DATA NOT AVAILABLE	90.000
(AIHC12)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SHD.	90.000

REFERENCE INFORMATION	
SREF	.5030 IN.
LREF	.8000 IN.
BREF	.8000 IN.
XTRP	5.7210 IN.
YTRP	.0000 IN.
ZTRP	.0000 IN.
SCALE	.0055

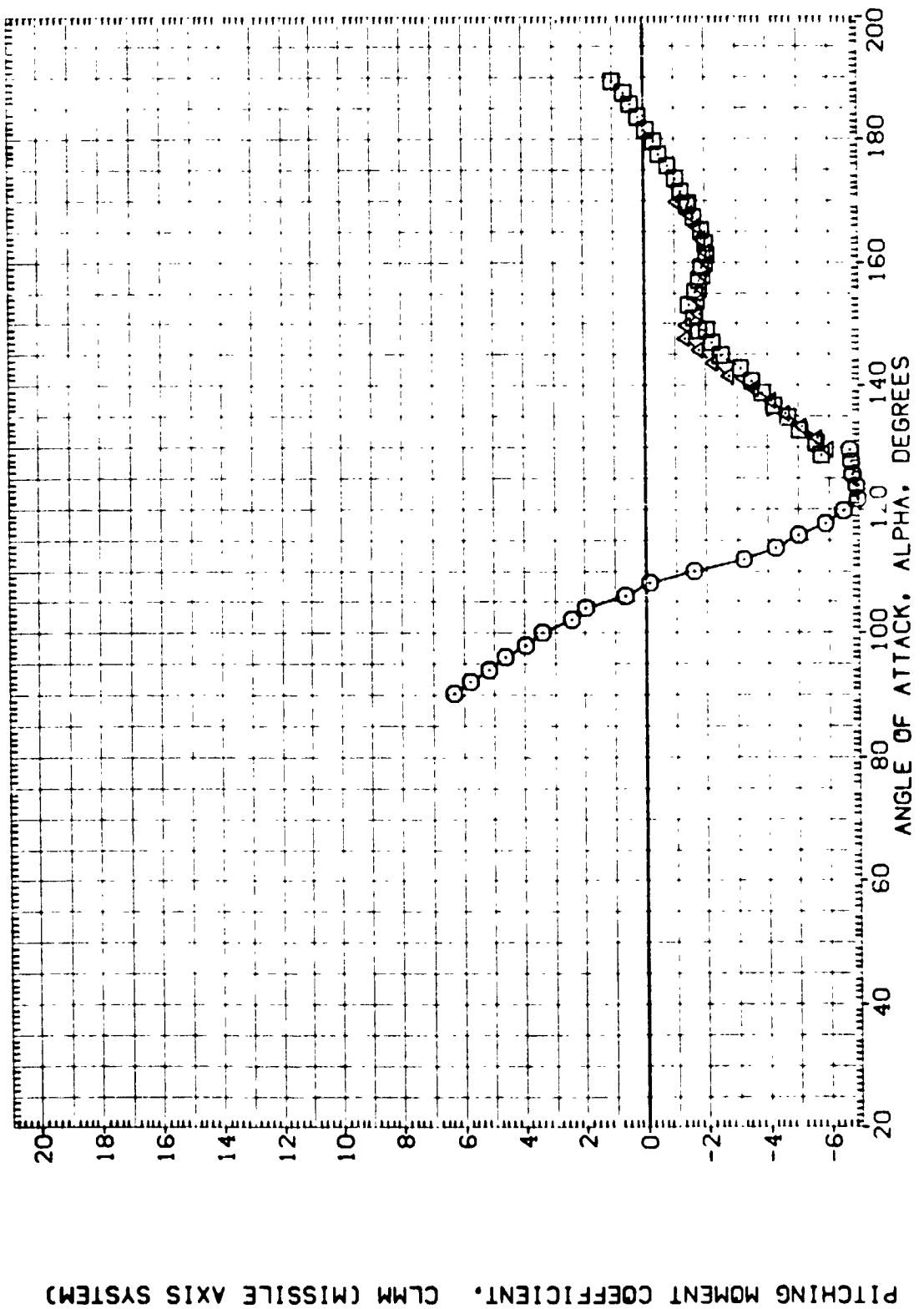


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 90)

(A)MACH = .40

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(AIH006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(AIH012)	DATA NOT AVAILABLE	90.000	BRREF .8000 IN.
(AIH012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S/O.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

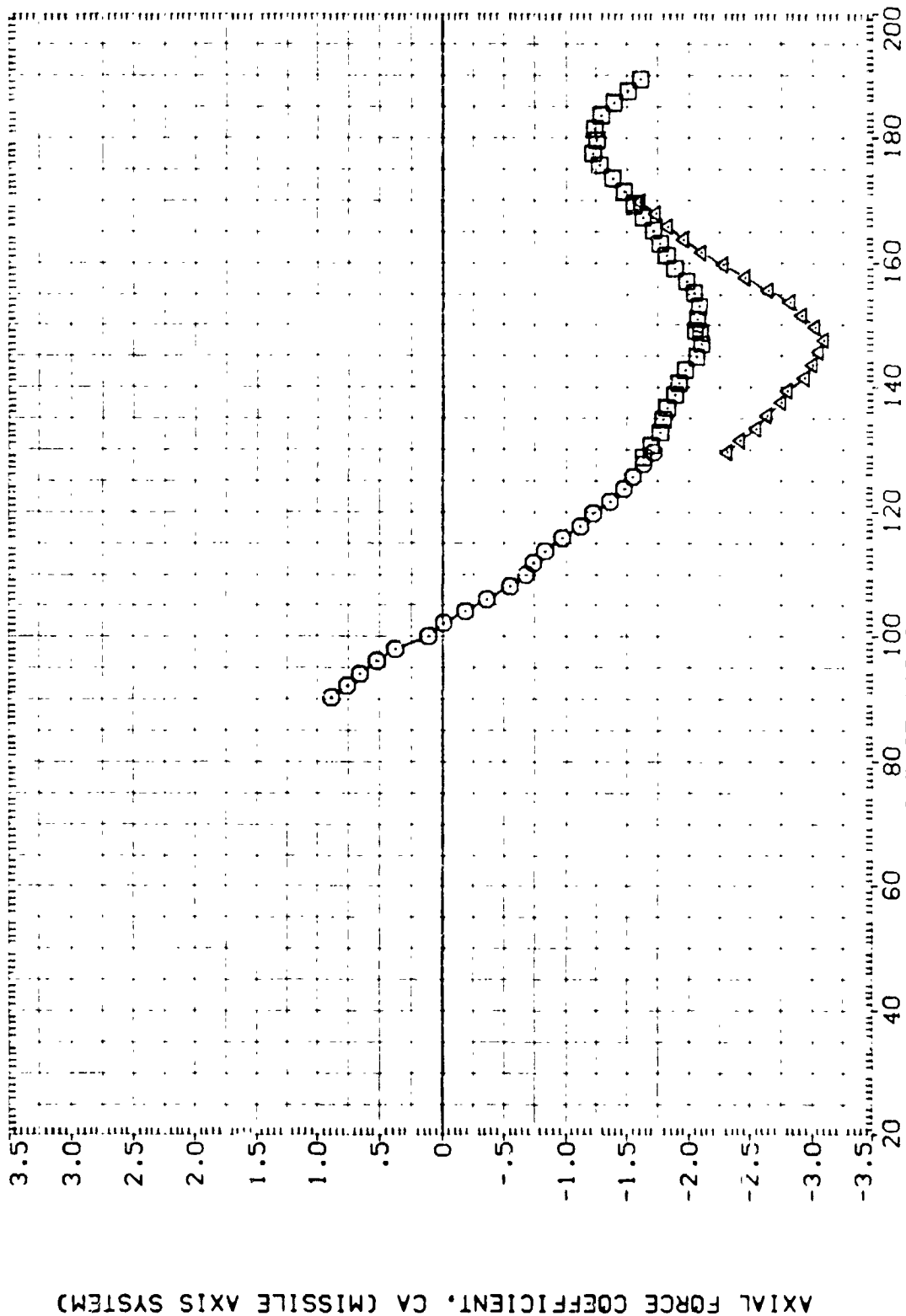


FIGURE 21. EFFECT OF HEAT S/O AND PROT. S/O ON QSR OF AXIS SYSTEM (V/O HEAT S/O)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIH005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(AIH005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(AIH012)      DATA NOT AVAILABLE      90.000

(AIH012)      MSFC TVT604 (SABF) SRB WITH PROT. V/D HEAT S+D.      90.000

REFERENCE      INFORMATION

SREF      SQ. IN.

LREF      IN.

BREF      IN.

YMRP      IN.

ZMRP      IN.

SCALE      .0055

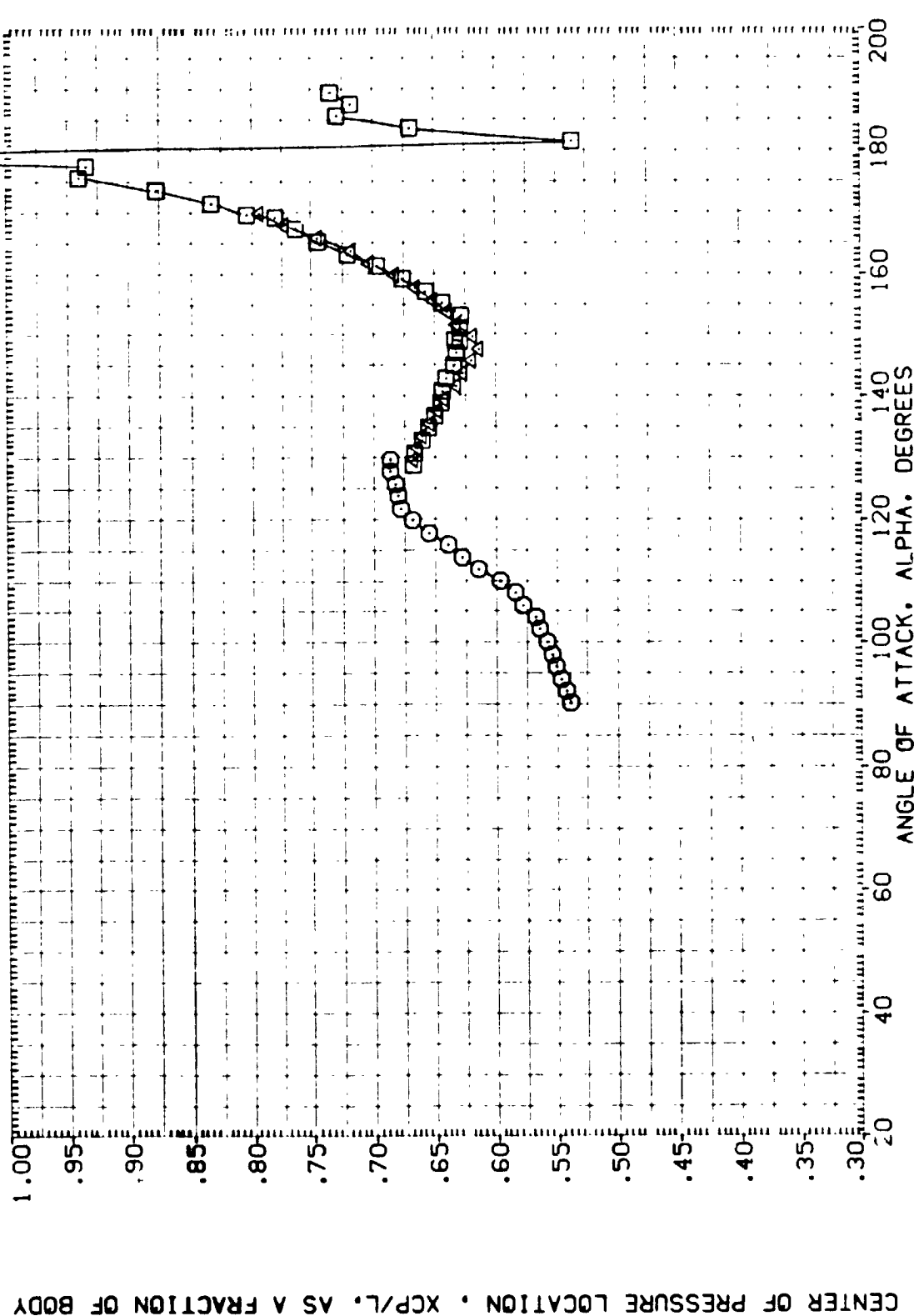


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 90)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A)H005    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A)H005    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A)H012    DATA NOT AVAILABLE    90.000

(A)H012    MSFC TVT604 (SABF) SRB WITH PROT. V/D HEAT SHD.    90.000

REFERENCE INFORMATION

SREF    .5030    IN.

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

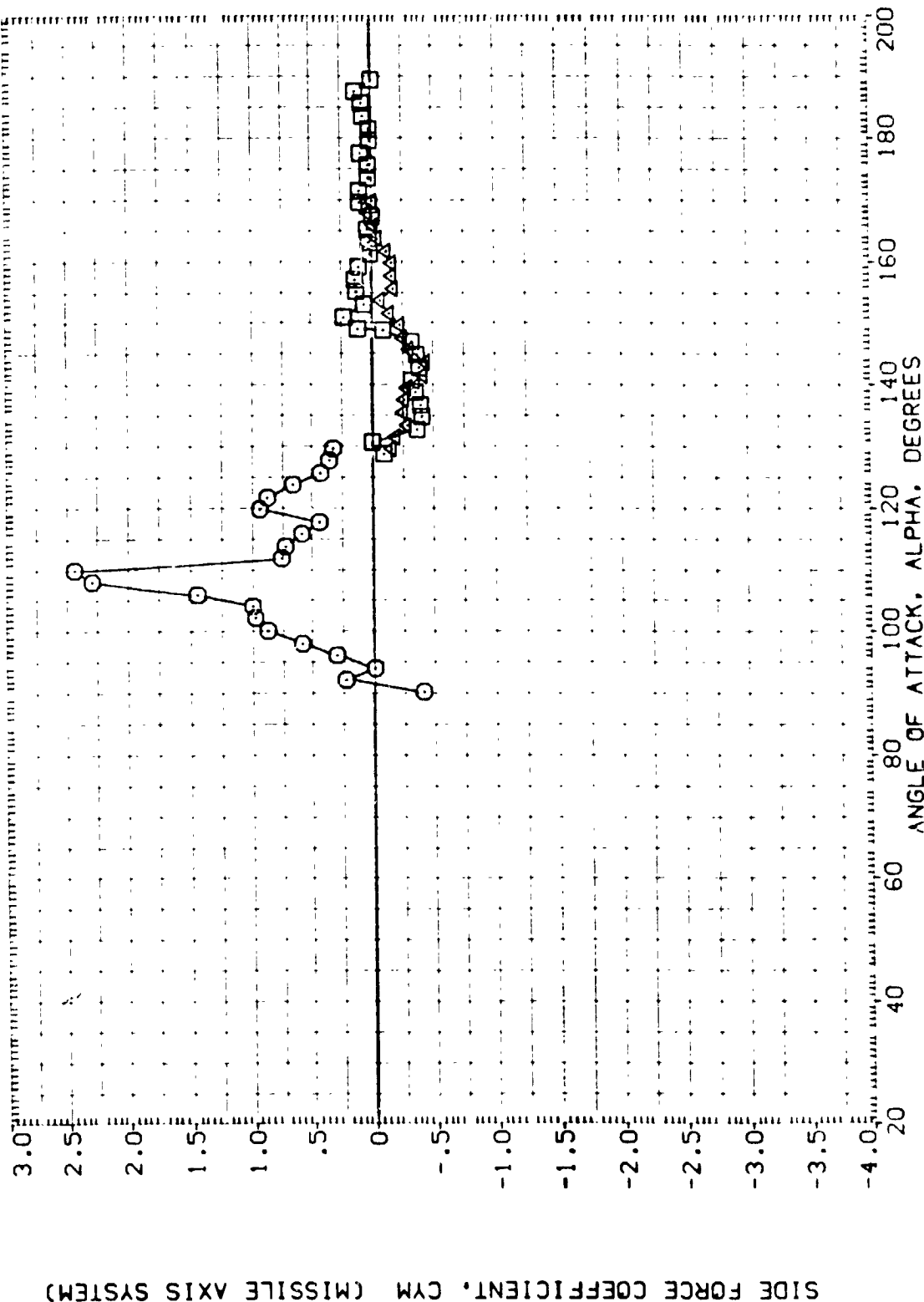


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 50.1 IN.
(A1HC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1HC12)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1HC12)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

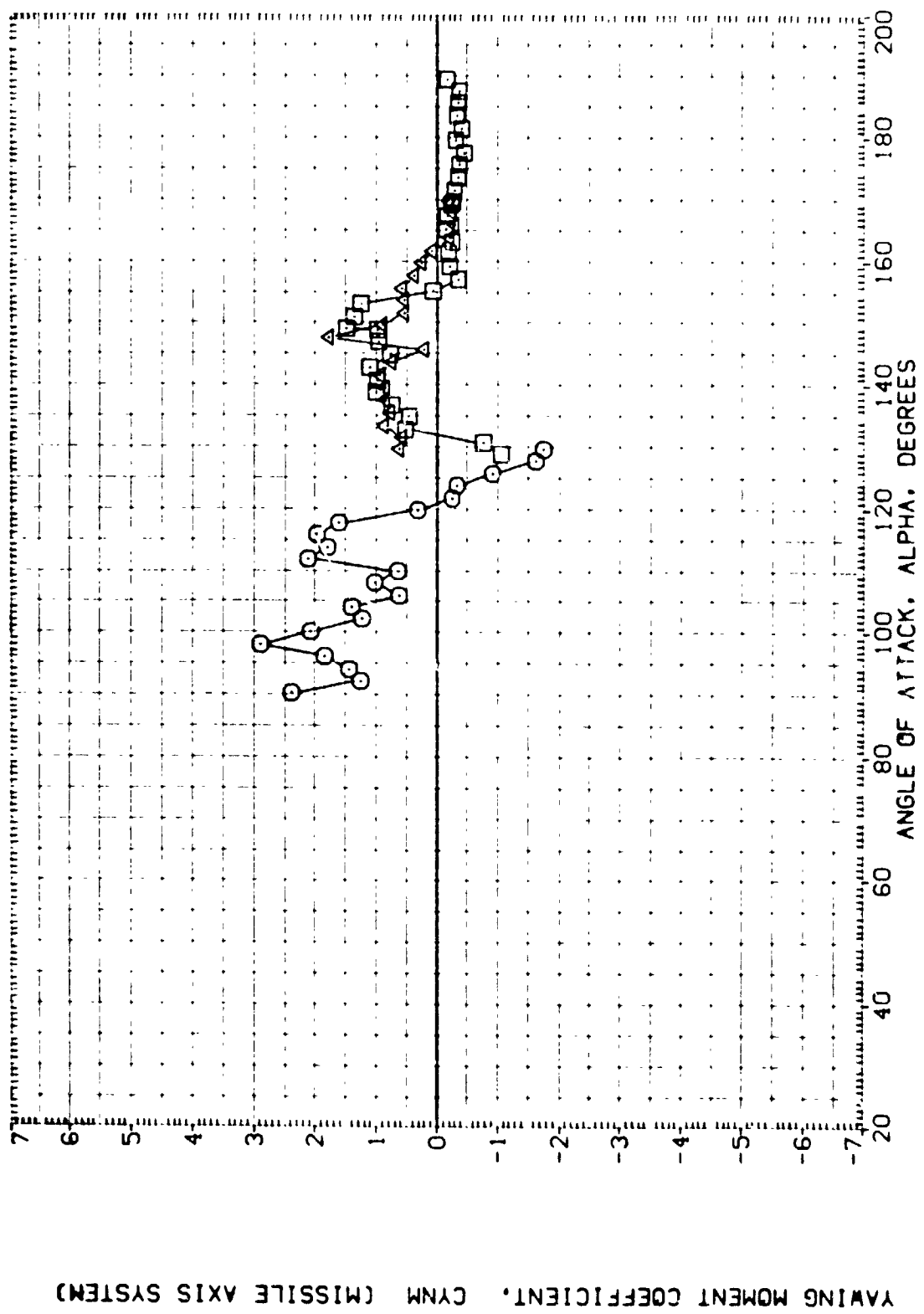


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H005	MSFC T4T604 (SABF) SRB WITH ALL PROTUBERANCES	50.000	SRB F 5030 IN.
(A)H005	MSFC T4T604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LANCE 8000 IN.
(A)H012	DATA NOT AVAILABLE	90.000	BRACE 8000 IN.
(A)H012	MSFC T4T604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000	XPRP 5.7210 IN.
			YPRP .0000 IN.
			ZPRP .0000 IN.
			SCALE .0055

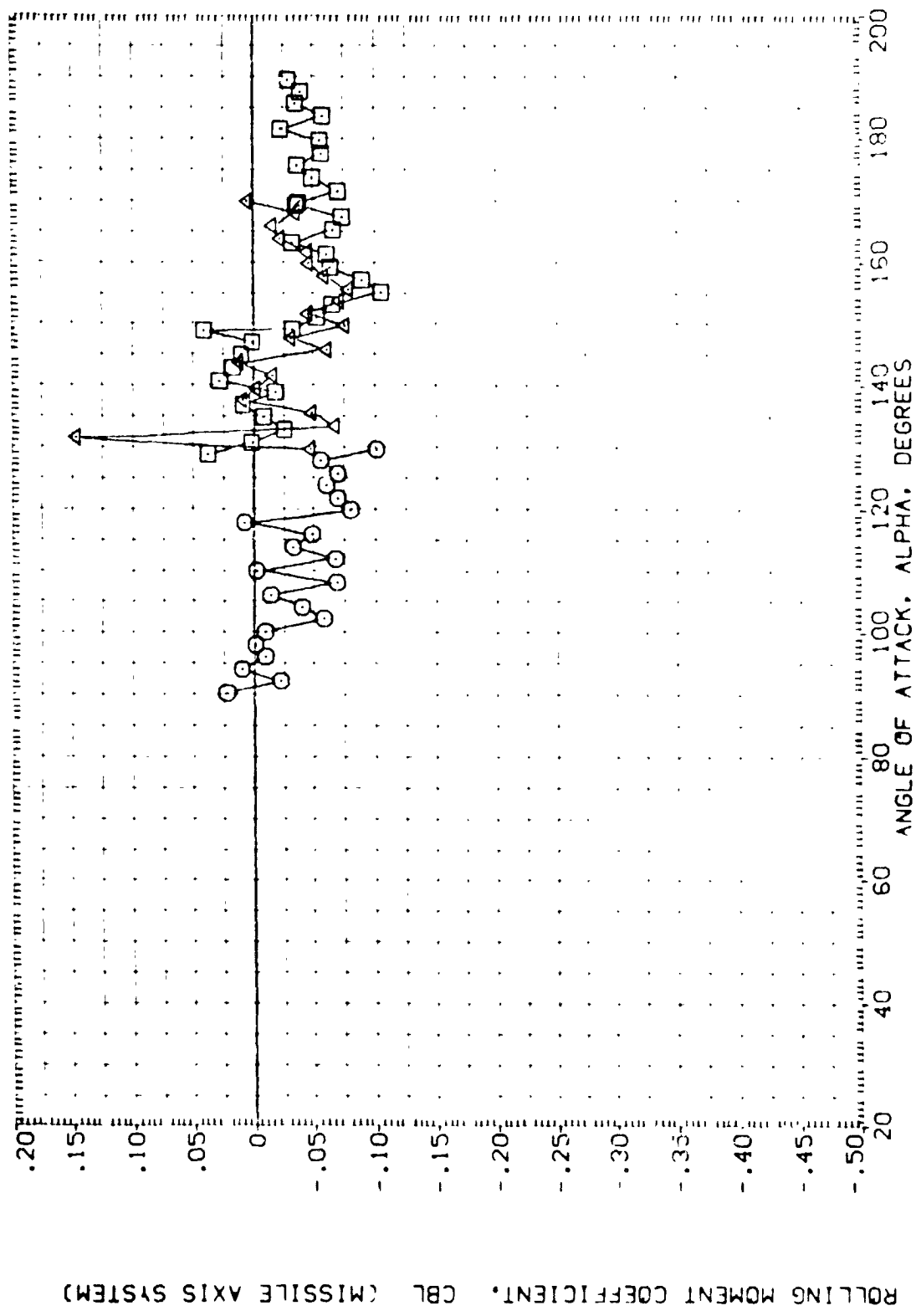


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL  
(A1H005)  
(A1H005)  
(A1H012)  
(A1H012)

PHI  
90.000  
90.000  
90.000  
90.000

CONFIGURATION DESCRIPTION  
MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES  
MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES  
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.  
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.

REFERENCE INFORMATION  
SREF .5030 SQ. IN.  
LREF .8000 IN.  
BREF .8000 IN.  
XMRP 5.7210 IN.  
YMRP .0000 IN.  
ZMRP .0000 IN.  
SCALE .0055

NORMAL FORCE COEFFICIENT, CNM (MISSILE AXIS SYSTEM)

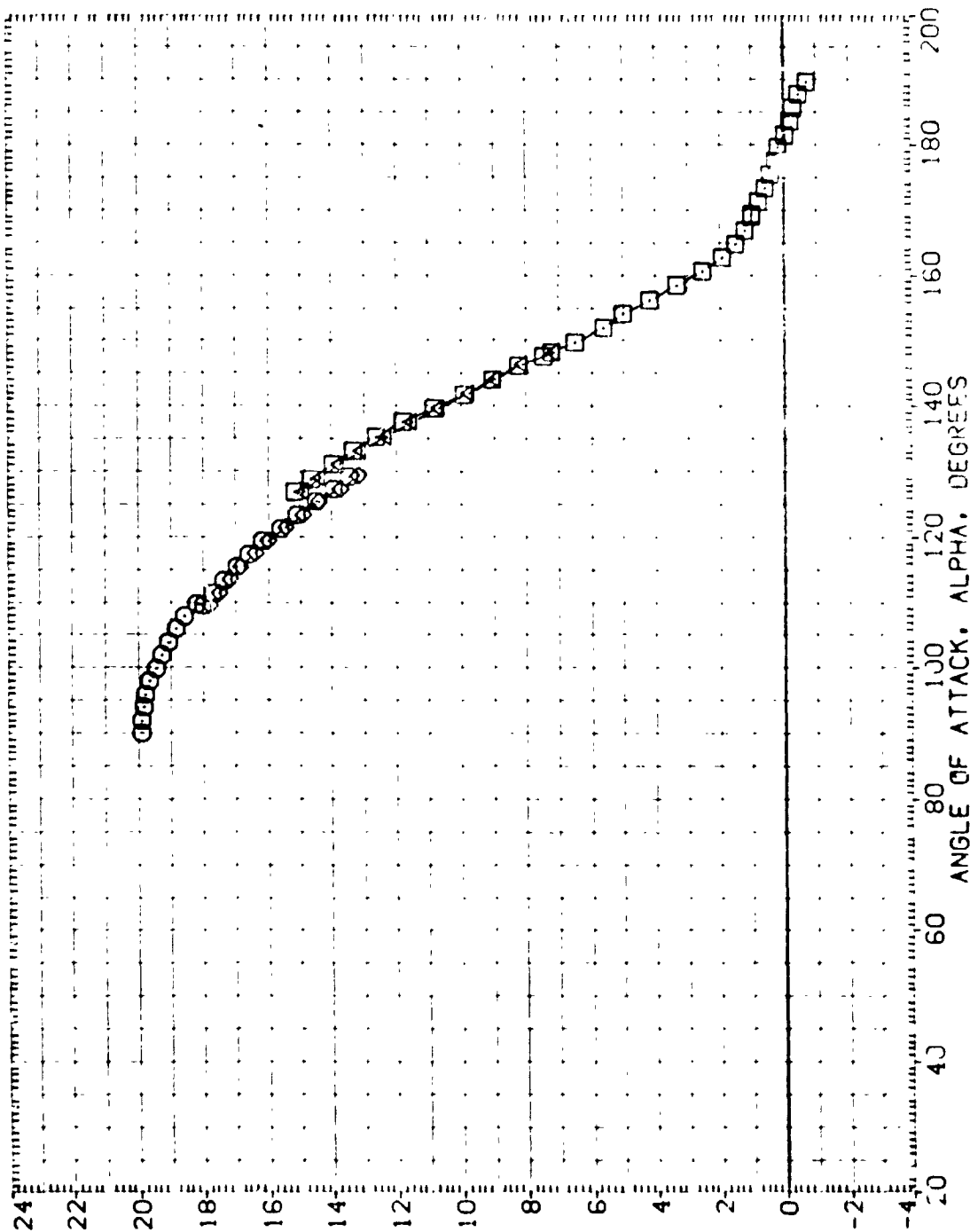


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(B) FCH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	53.000	SPEF .5030 SQ. IN.
(A1H006)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H012)	MSFC TV1604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000	BREF .8000 IN.
(A1H012)	MSFC TV1604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

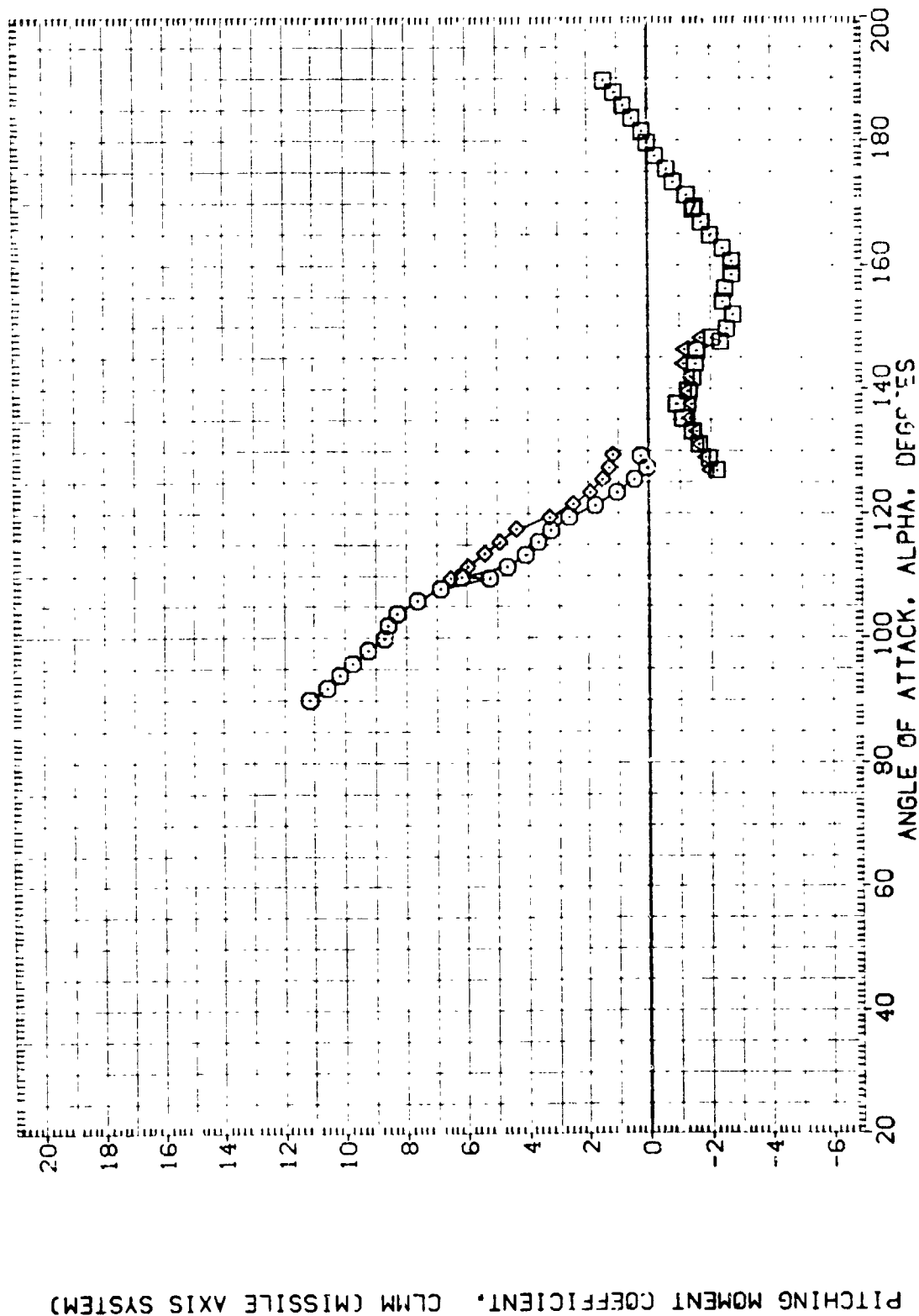


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(B)MACH = 1.20



DATA SET SYMBOL  
(A1HC05)  
(A1HC05)  
(A1HC12)  
(A1HC12)

CONFIGURATION DESCRIPTION  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.  
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.

PHI  
90.000  
90.000  
90.000

REFERENCE INFORMATION  
SREF .5030 SQ. IN.  
LREF .8000 IN.  
BREF .8000 IN.  
XMRP 5.7210 IN. XS  
YMRP .0000 IN. YS  
ZMRP .0000 IN. ZS  
SCALE .0055

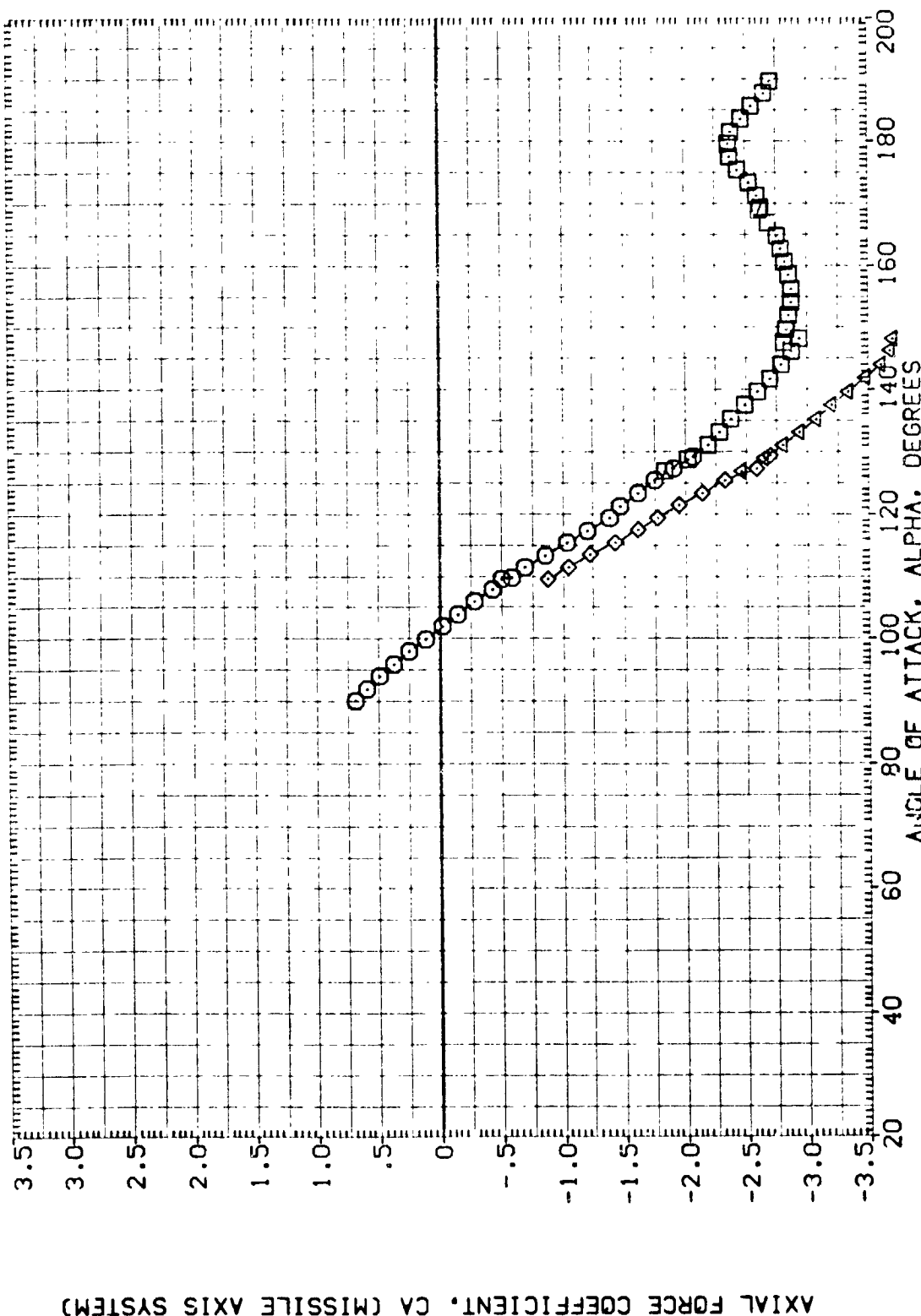


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(B)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUBANCES	90.000
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUBANCES	90.000
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

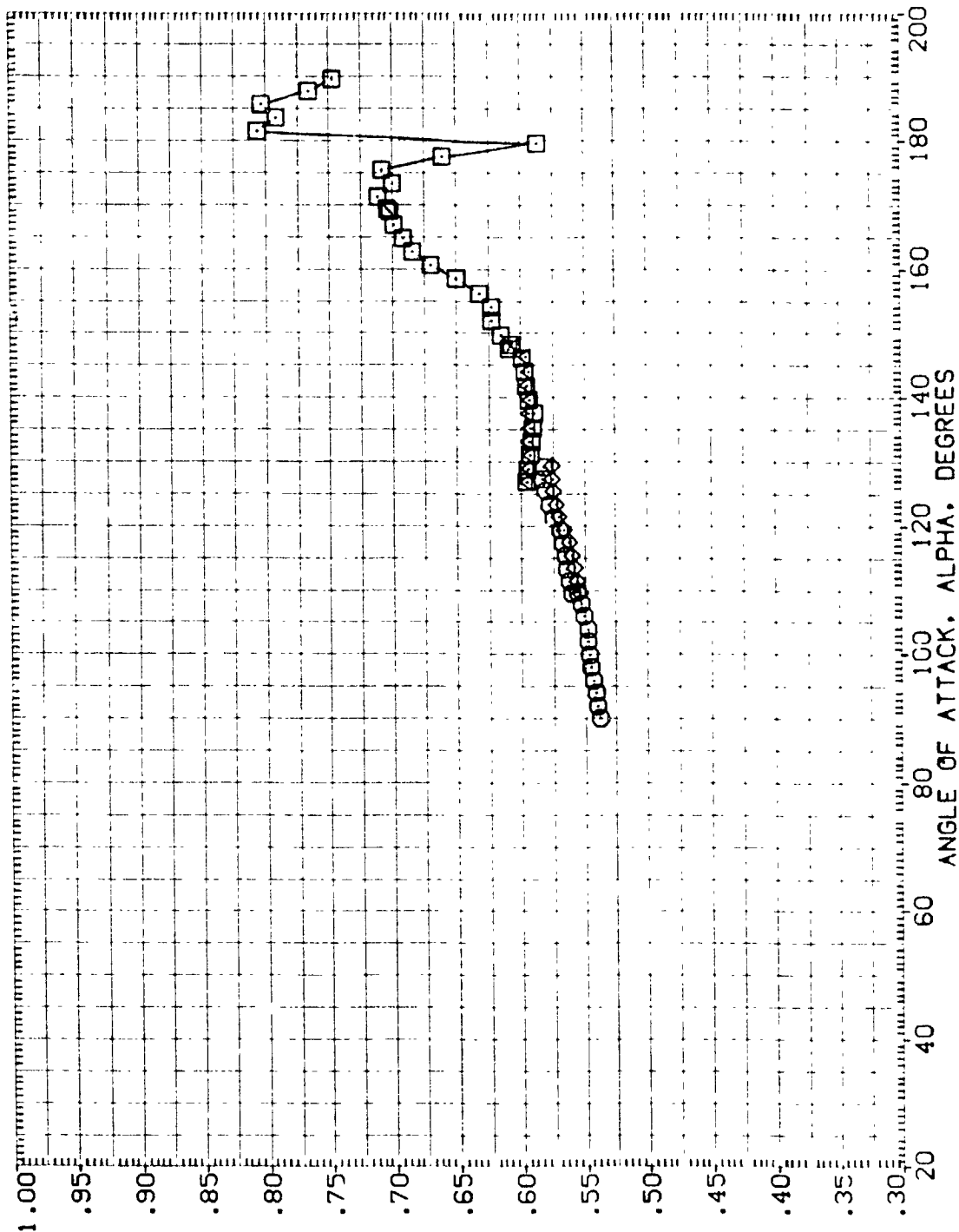


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 50. IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-0.	90.000	BREF .8000 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-0.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

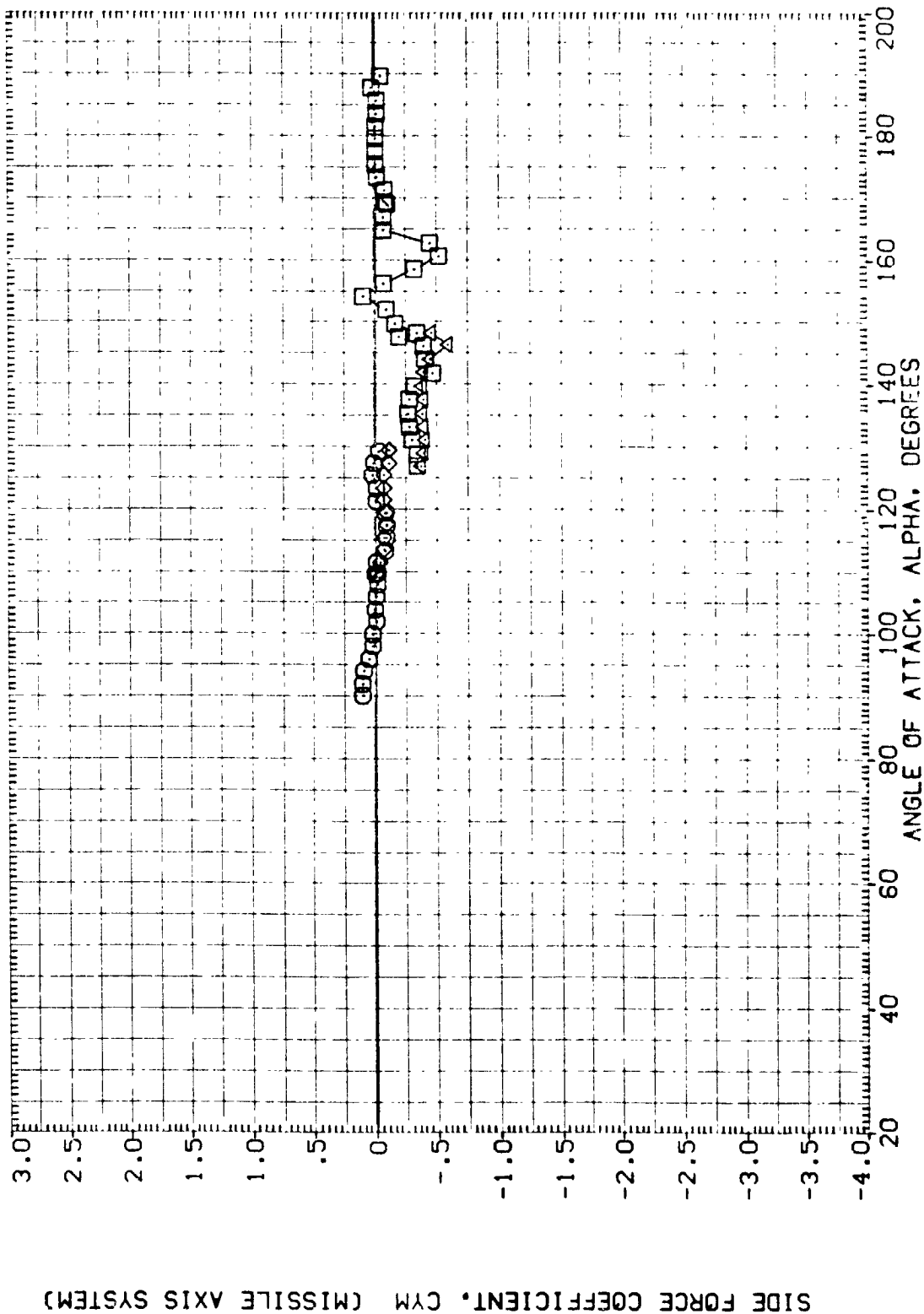


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(B)MACH = 1.20 PAGE 552

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI:	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .503C SQ. IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .800C IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	BREF .800C IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	XMRP 5.7210 IN. XS
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

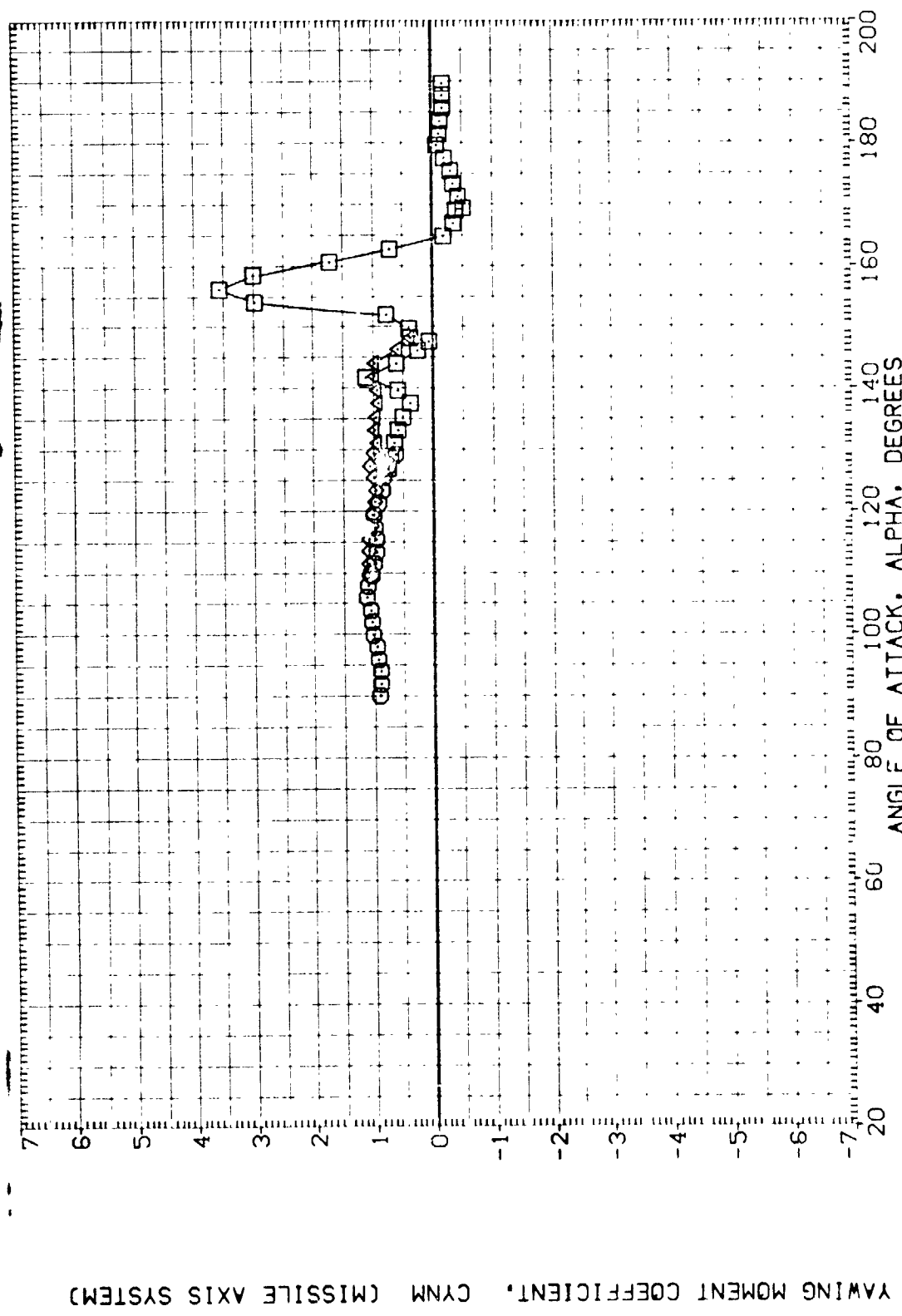


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIHC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(AIHC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(AIHC12)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	SREF .8000 IN.
(AIHC12)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

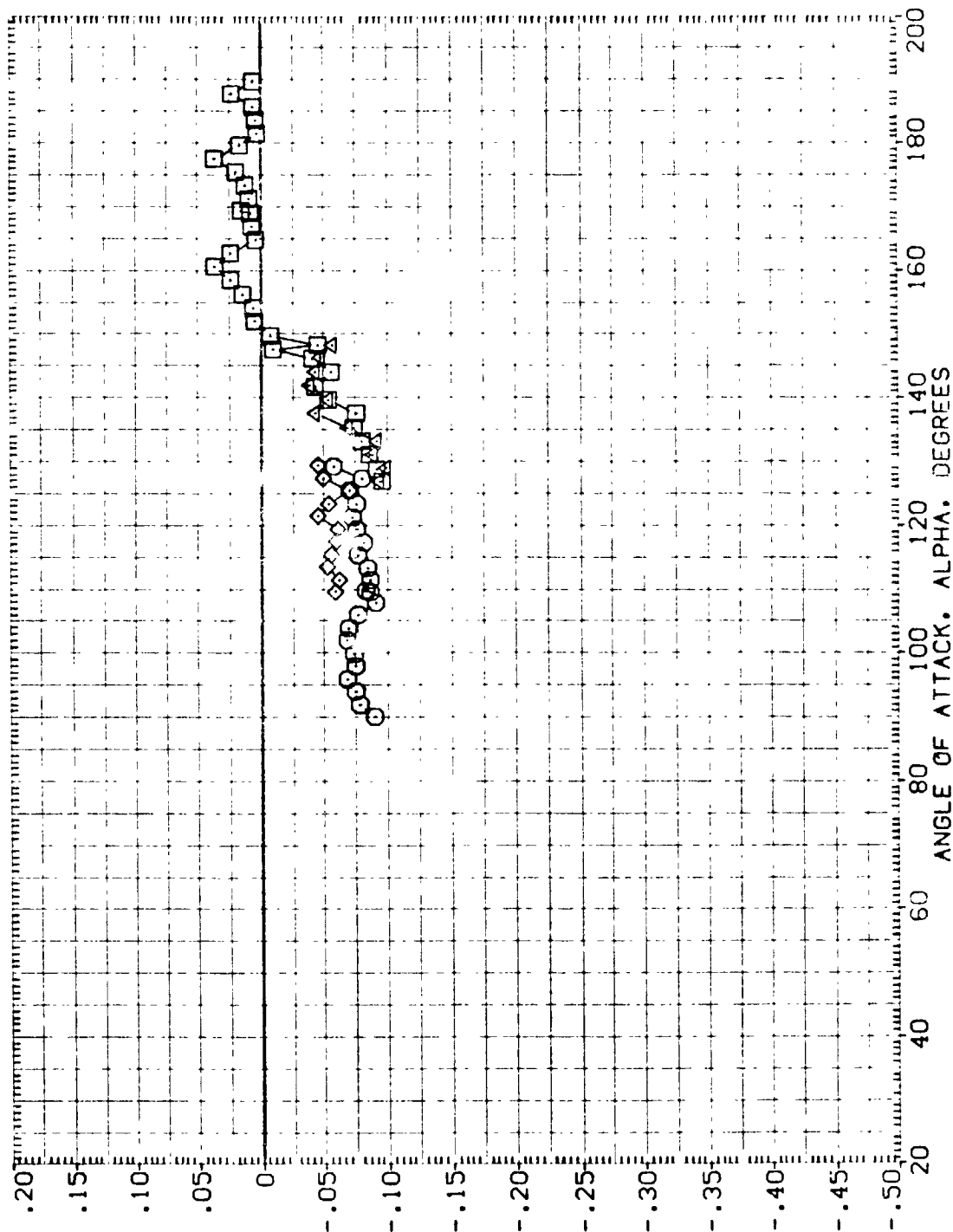


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(B)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8003 IN.
(A1H012)	DATA NOT AVAILABLE	90.000	BREF .8003 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. 4/3 HEAT SHD.	90.000	XMRP 5.7213 IN. XS
			YMRP .0003 IN. YS
			ZMRP .0003 IN. ZS
			SCALE .0055

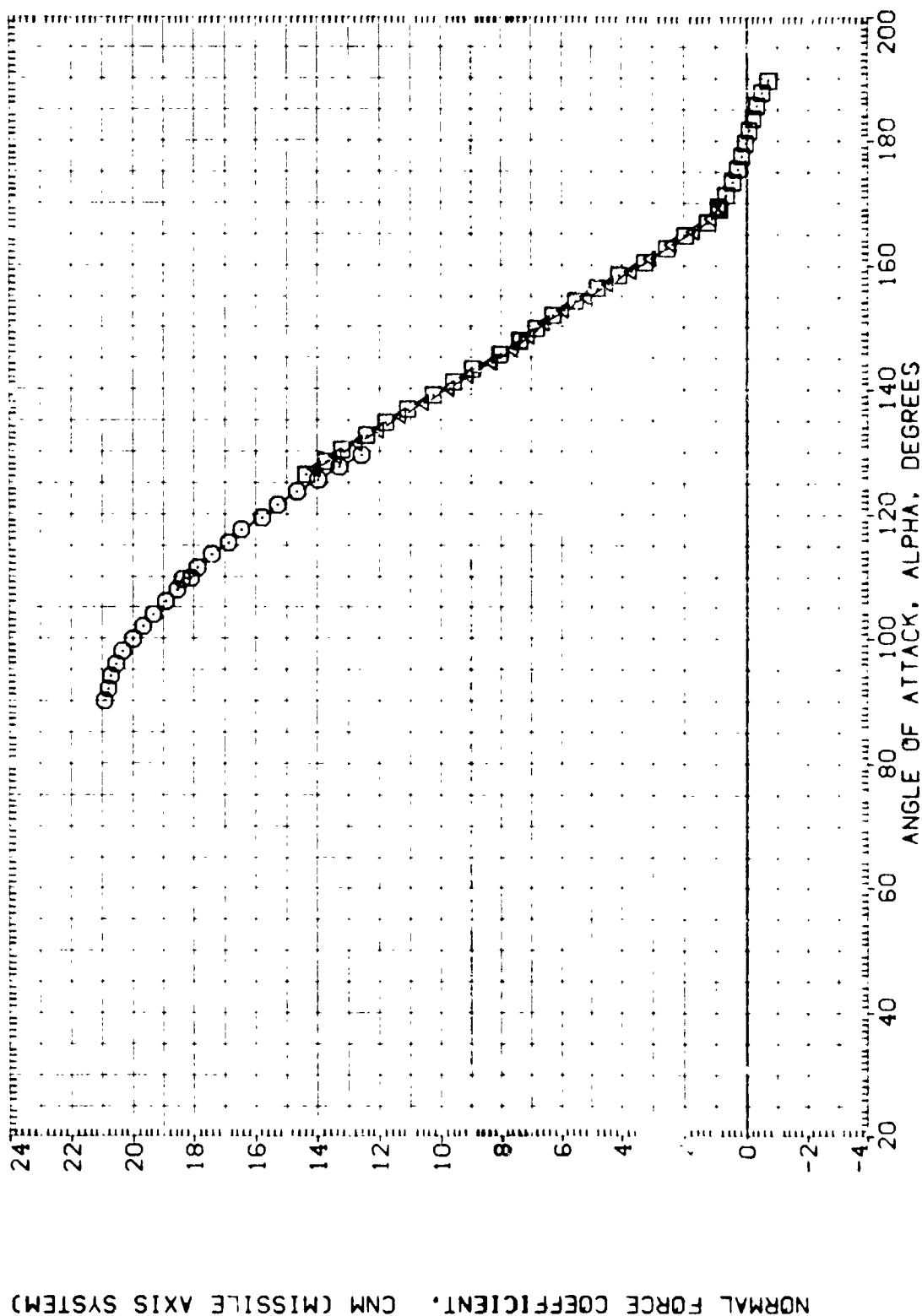


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES      90.000

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES      90.000

(A1H012)      DATA NOT AVAILABLE      90.000

(A1H012)      MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-D.      90.000

REFERENCE INFORMATION

SREF      30.3C      IN.

LREF      800C      IN.

BREF      500C      IN.

XMRP      5.721C      IN.

YMRP      .000C      IN.

ZMRP      .000C      IN.

SCALE      .0055

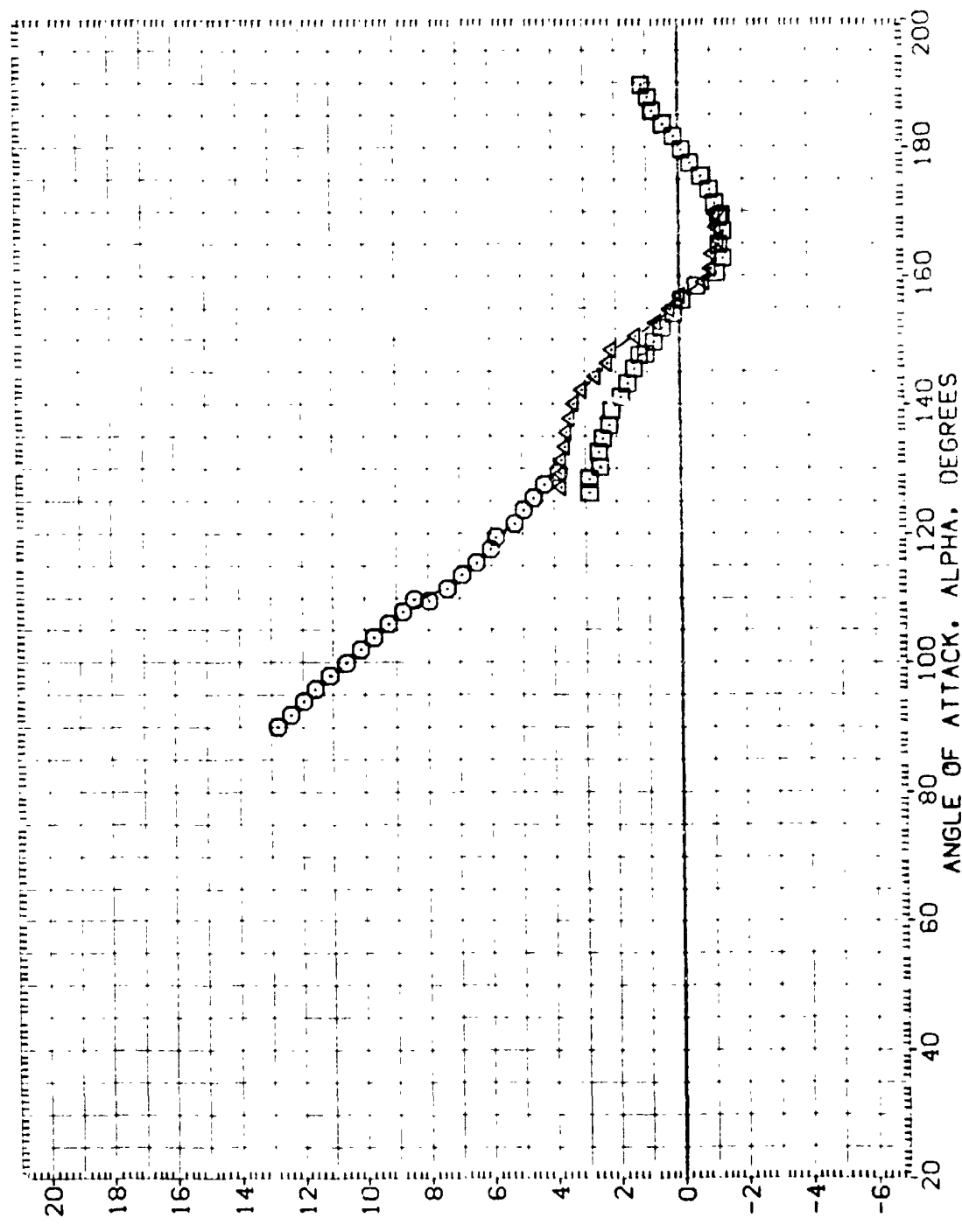


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PH.

(A1HC05)      MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1HC05)      MSFC TW1604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1HC12)      DATA NOT AVAILABLE      90.000

(A1HC12)      MSFC TW1604 (SABF) SRB WITH PROT. V/O HEAT SHD.      90.000

REFERENCE INFORMATION

SREF      5030      50.30      IN.

LREF      8000      80.00      IN.

BREF      8000      80.00      IN.

XMRP      5.7210      57.21      IN.

YMRP      .0000      0.00      IN.

ZMRP      .0000      0.00      IN.

SCALE      .0055

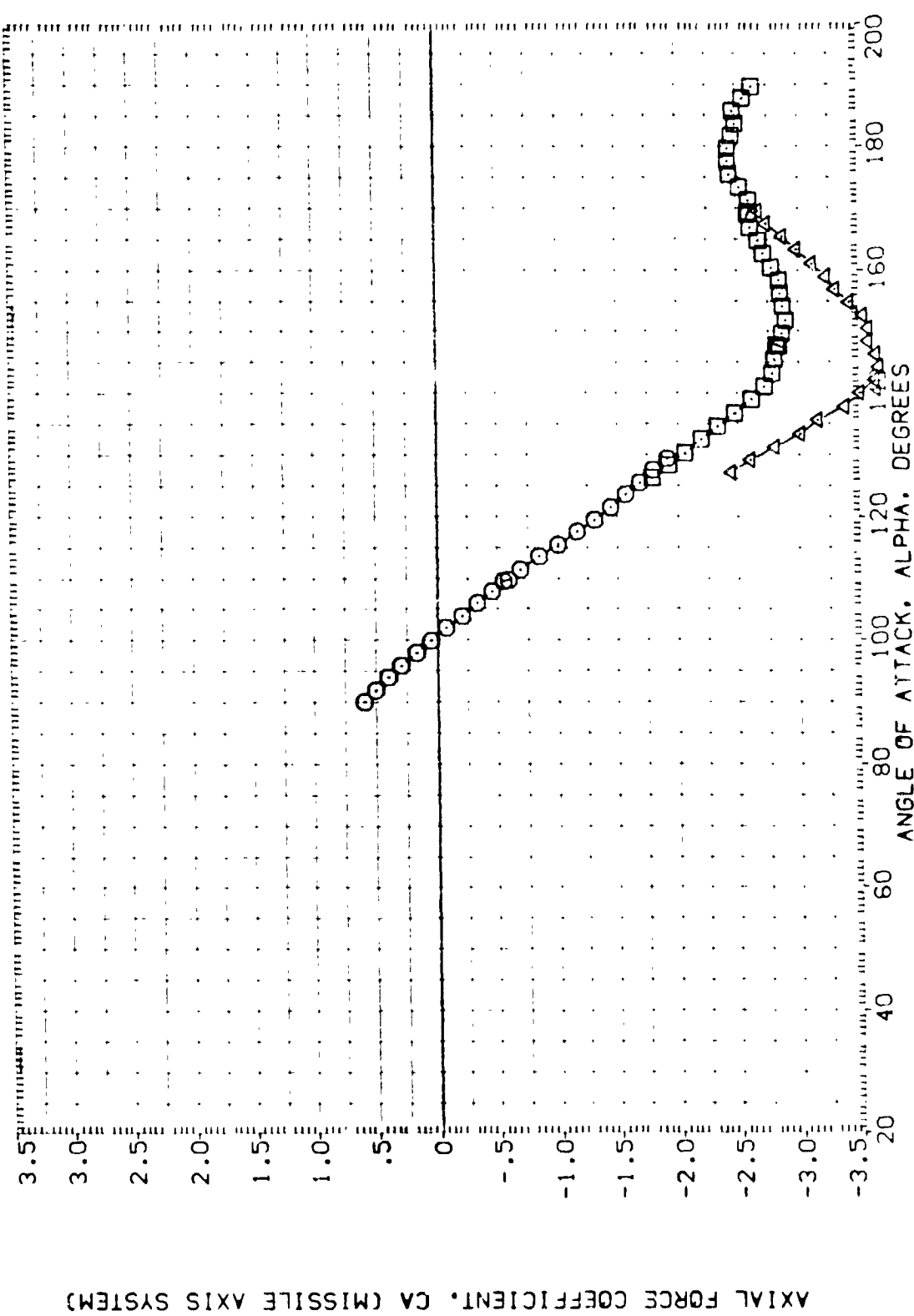


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1H005)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      90.000

(A1H012)      DATA NOT AVAILABLE      90.000

(A1H012)      MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT S.D.      90.000

REFERENCE INFORMATION

SREF .5030 IN.

LREF .5000 IN.

BREF .8000 IN.

XMRP 5.7210 IN. XS

YMRP .0000 IN. YS

ZMRP .0000 IN. ZS

SCALE .0055

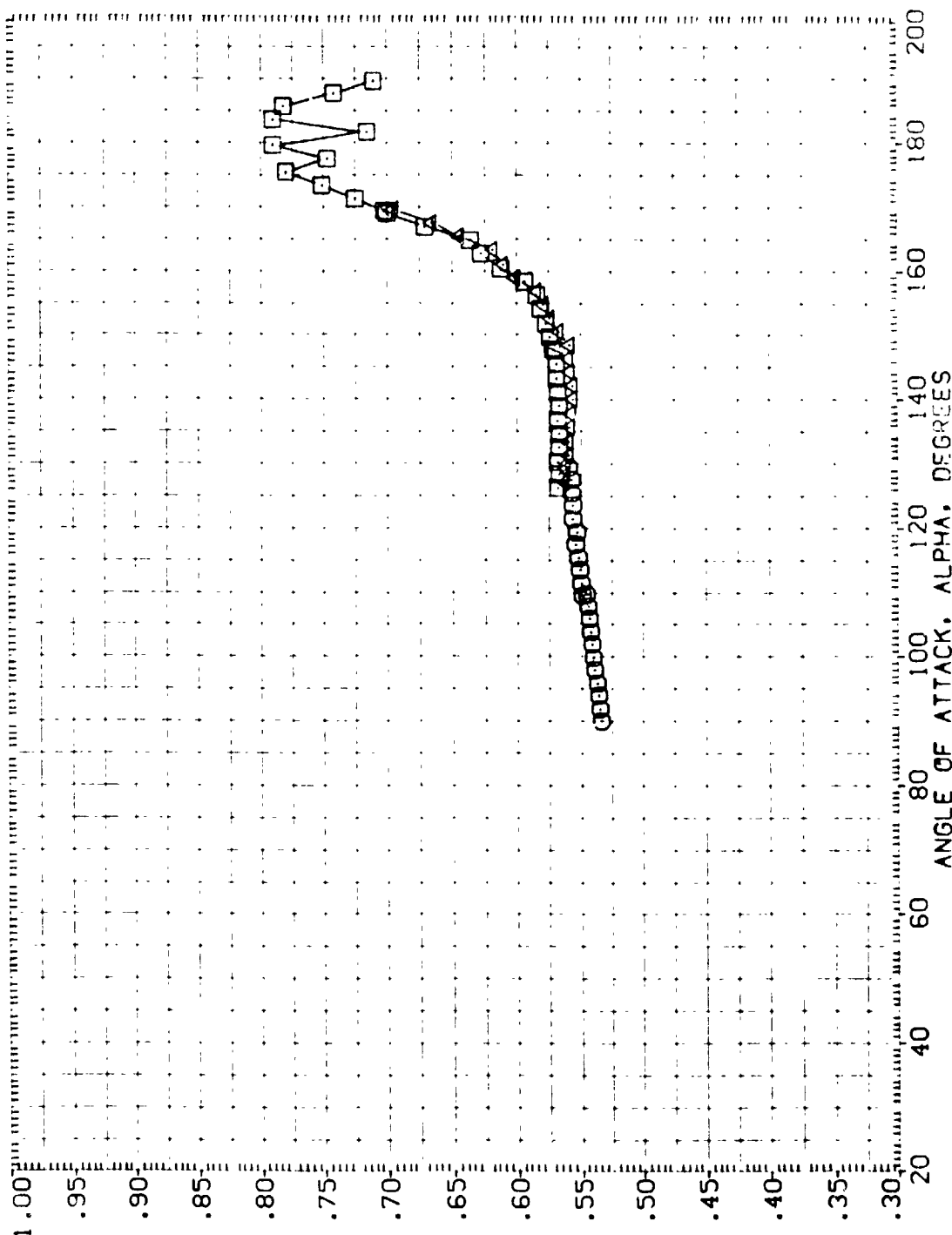


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(C)MACH = 1.96

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    90.000

(A1H012)    DATA NOT AVAILABLE    90.000

(A1H012)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-40.    90.000

REFERENCE INFORMATION

SREF    5030    50.30 IN.

LREF    8000    80.00 IN.

BREF    8000    80.00 IN.

XMRP    5.7210    IN. XS

YMRP    .0000    IN. YS

ZMRP    .0000    IN. ZS

SCALE    .0055

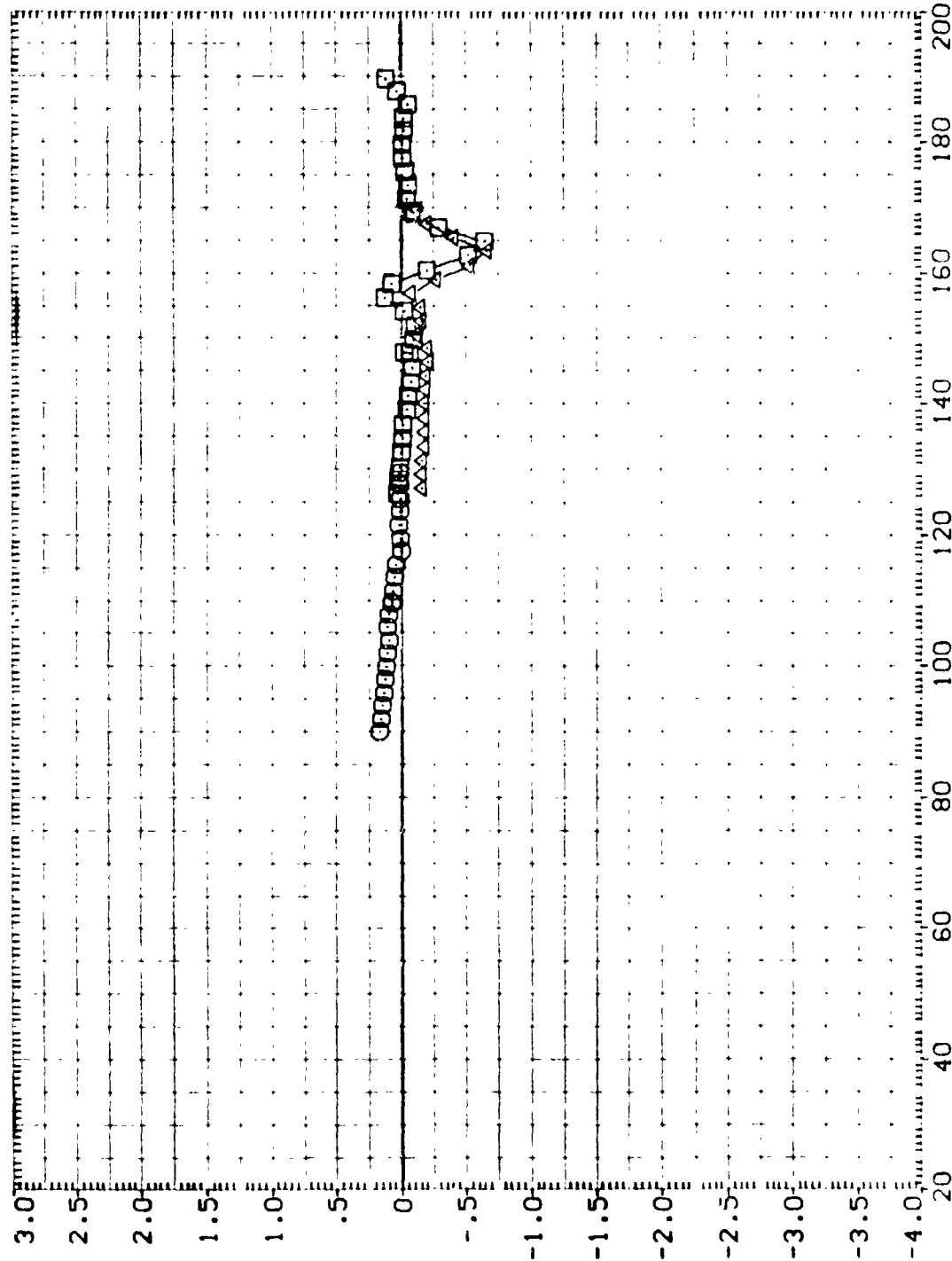


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(C)MACH = 1.96

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)HC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF
(A)HC06)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LRUF
(A)HC12)	DATA NOT AVAILABLE	90.000	BRUF
(A)HC12)	MSFC TVT604 (SABF) SRB WITH PROT. V/3 HEAT S-4.	90.000	XPRP
			YPRP
			ZPRP
			SCALE

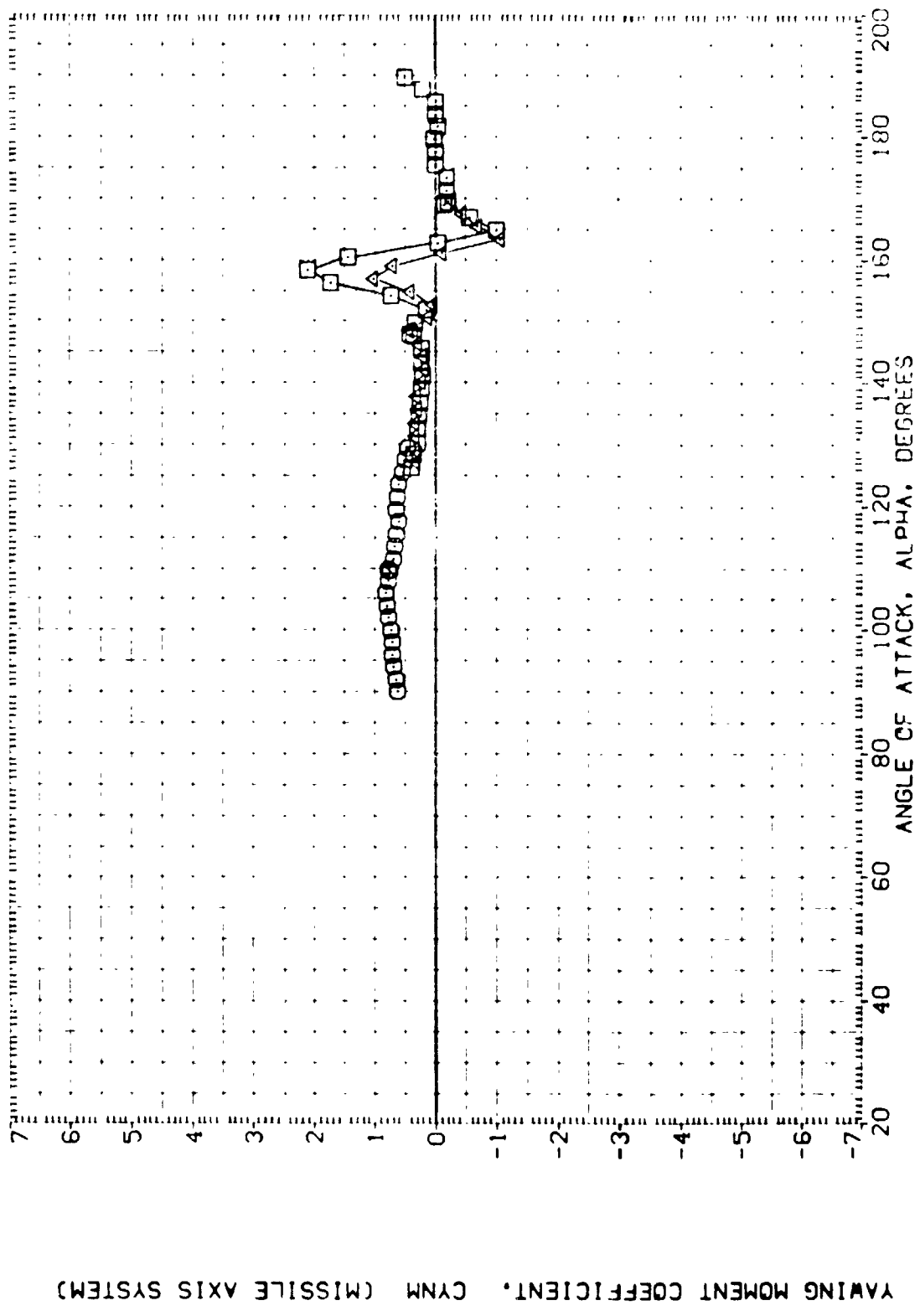


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1HC05)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1HC06)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1HC12)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1HC12)	MSFC TVT604 (SABF) SRB WITH PROT. 1/2 HEAT SHD.	90.000	XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

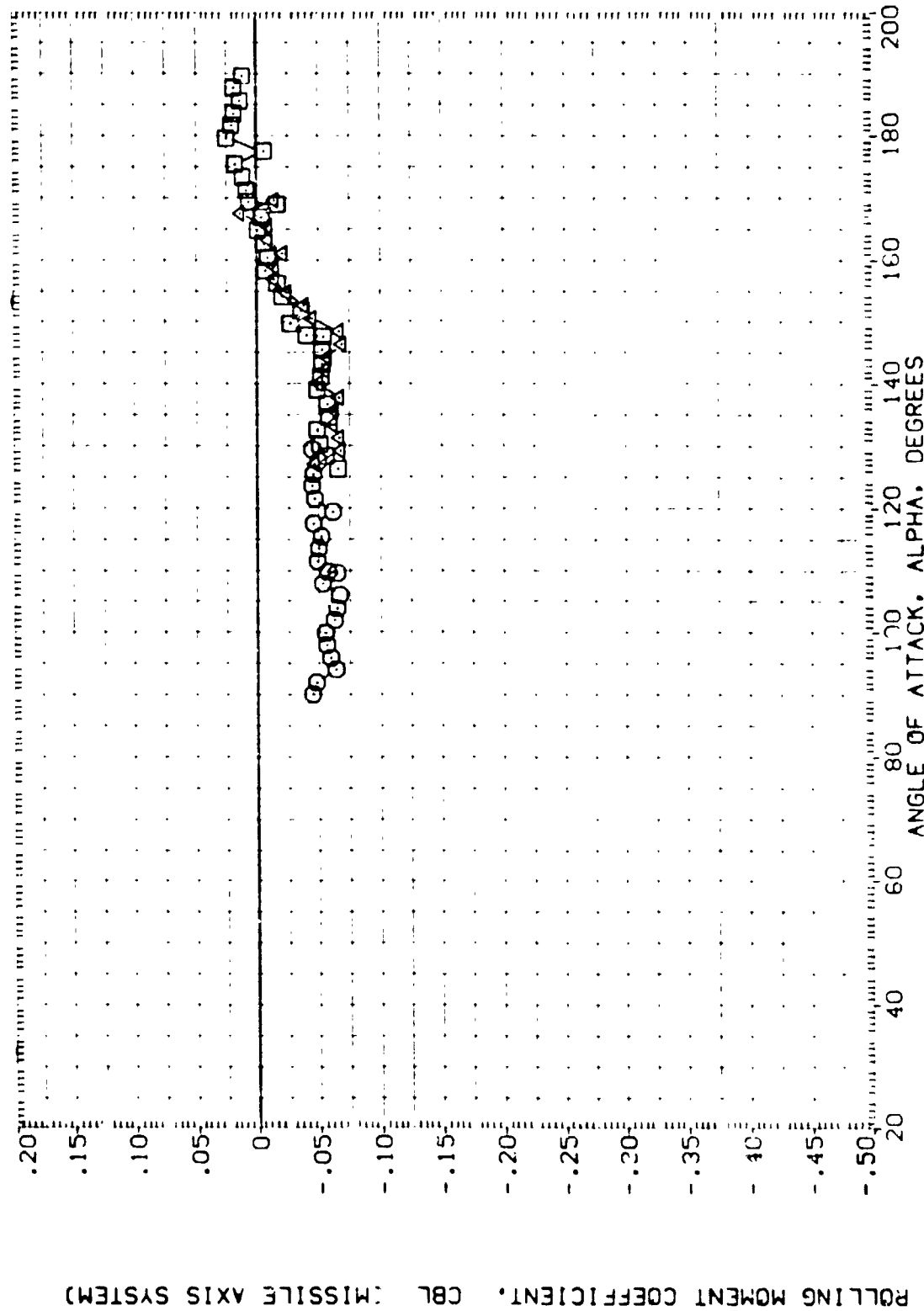


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SRF .5030 IN.
(A1H006)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H007)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SHD.	90.000	XMRP 5.7210 IN.
			YMRP .0000 IN.
			ZMRP .0000 IN.
			SCALE .0055

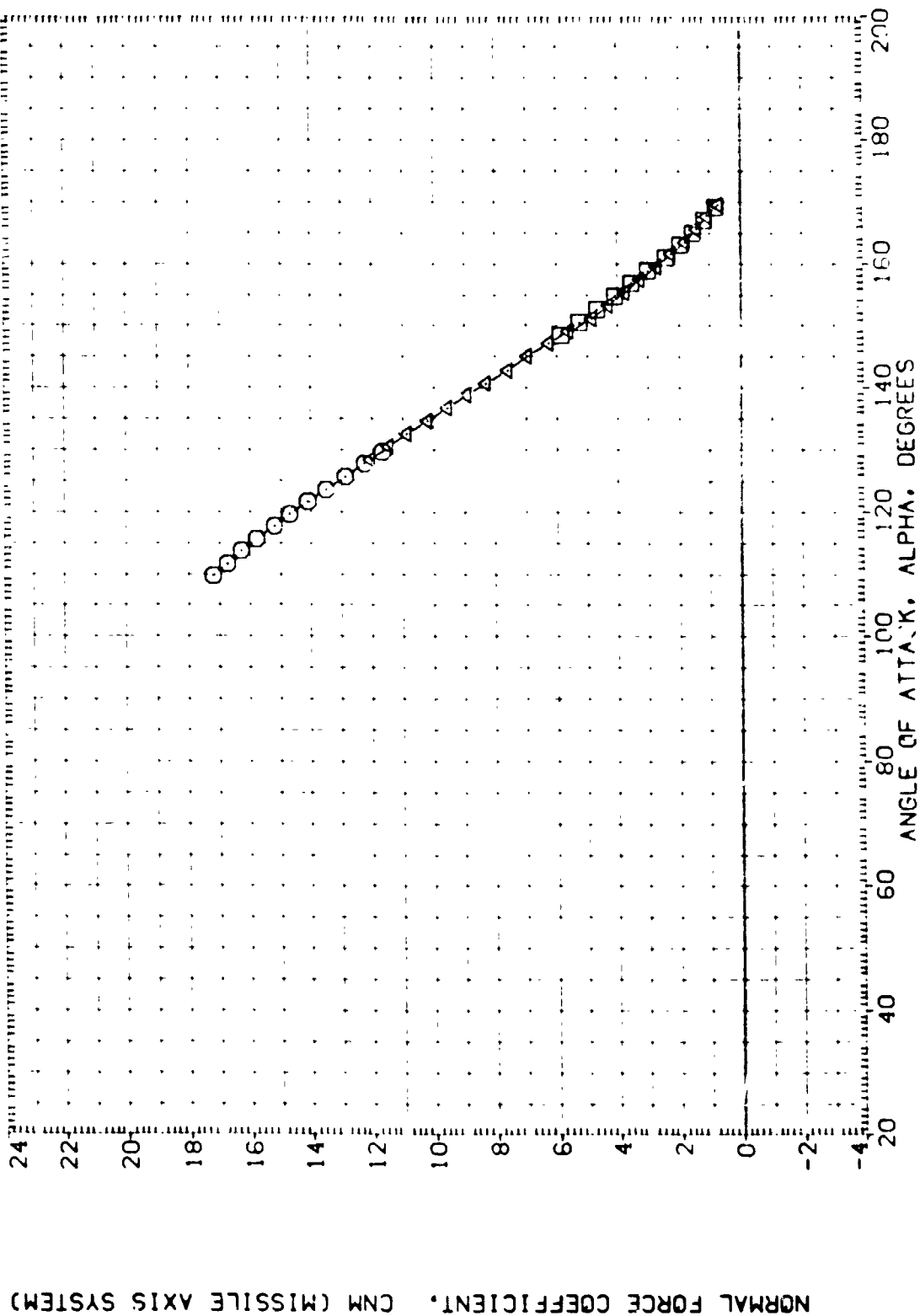


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(O)MACH = 3.48



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000
(A1H012)	DATA NOT AVAILABLE	90.000
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT S-H.	90.000

REFERENCE INFORMATION

SREF	.5030	SG. IN.
LREF	.8000	IN.
BREF	.8000	IN.
XMRP	5.7210	IN.
YMRP	.0000	IN.
ZMRP	.0000	IN.
SCALE	.0055	

PITCHING MOMENT COEFFICIENT, CLM (MISSILE AXIS SYSTEM)

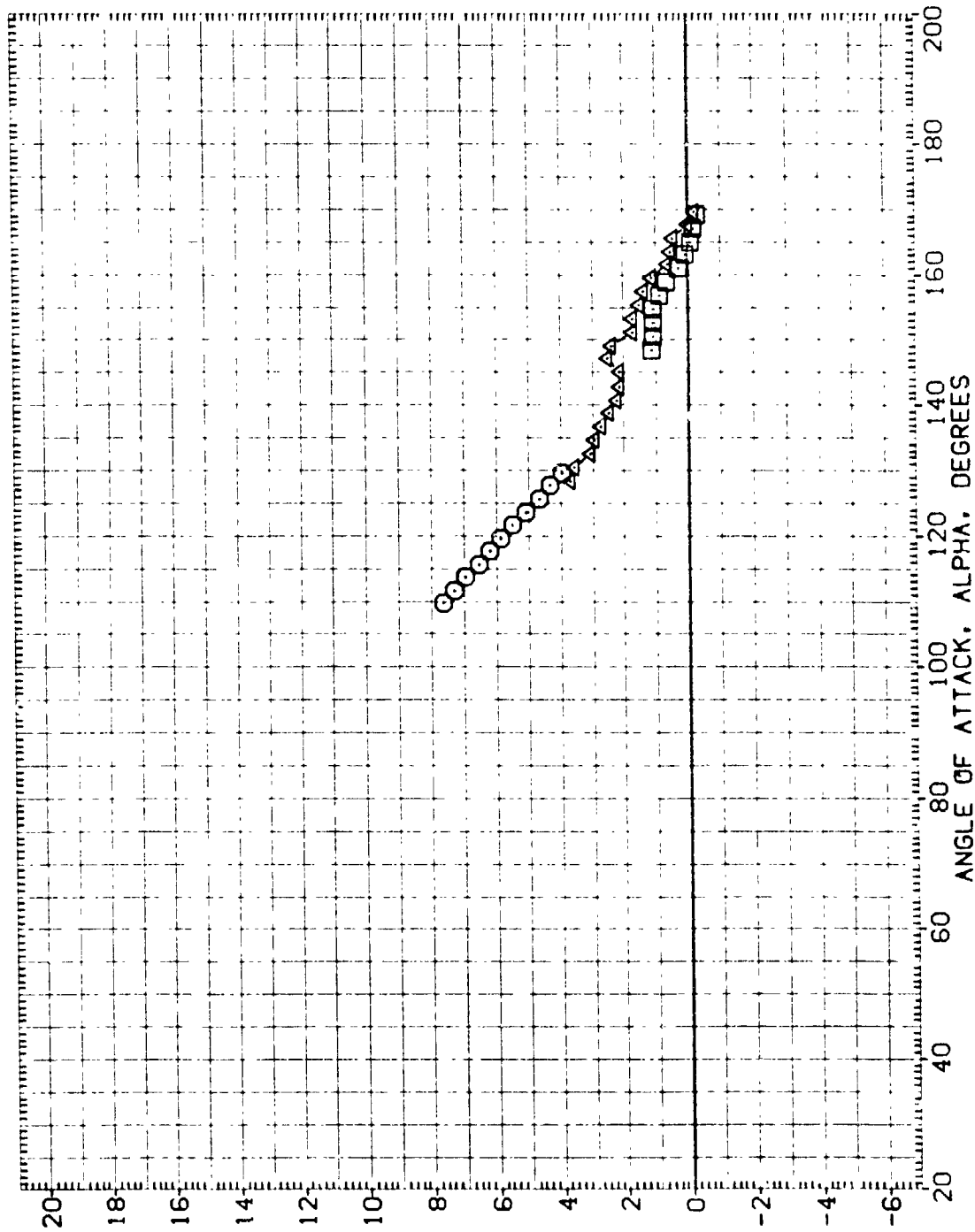


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 90)

(D)MACH = 3.48

REFERENCE INFORMATION

SREF	.5030	IN.
LREF	.6000	IN.
BREF	.5000	IN.
XMRP	5.7210	IN. XS
YMRP	.0000	IN. S
ZMRP	.0000	IN. ZS
SCALE	.0055	

PHI

90.000
90.000
90.000

CONFIGURATION DESCRIPTION

MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF)	SRB WITH ALL PROTUBERANCES
DATA NOT AVAILABLE	
MSFC TVT604 (SABF)	SRB WITH PROT. W/O HEAT SHD.

DATA SET SYMBOL

(AIH005)	○
(AIH005)	○
(AIH012)	△
(AIH012)	△

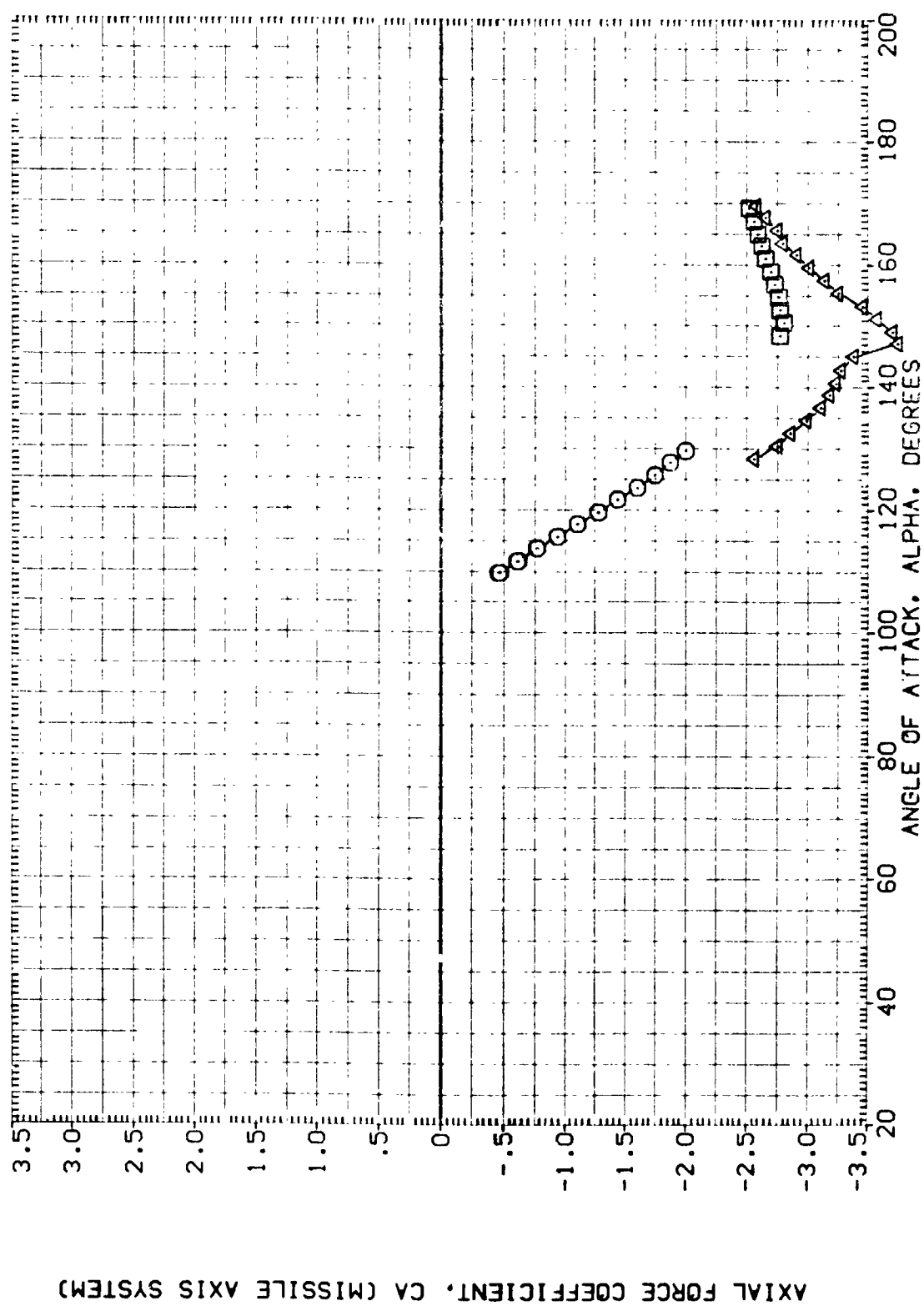


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION:    PHI

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES    90.000

(A1H005)    MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES    90.000

(A1H012)    DATA NOT AVAILABLE    90.000

(A1H012)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.    90.000

REFERENCE INFORMATION

SREF    5030    50. IN.

LREF    8000    IN.

BREF    8000    IN.

XMRP    5.7210    IN.

YMRP    .0000    IN.

ZMRP    .0000    IN.

SCALE    .0055

CENTER OF PRESSURE LOCATION, XCP/L, AS A FRACTION OF BODY LENGTH

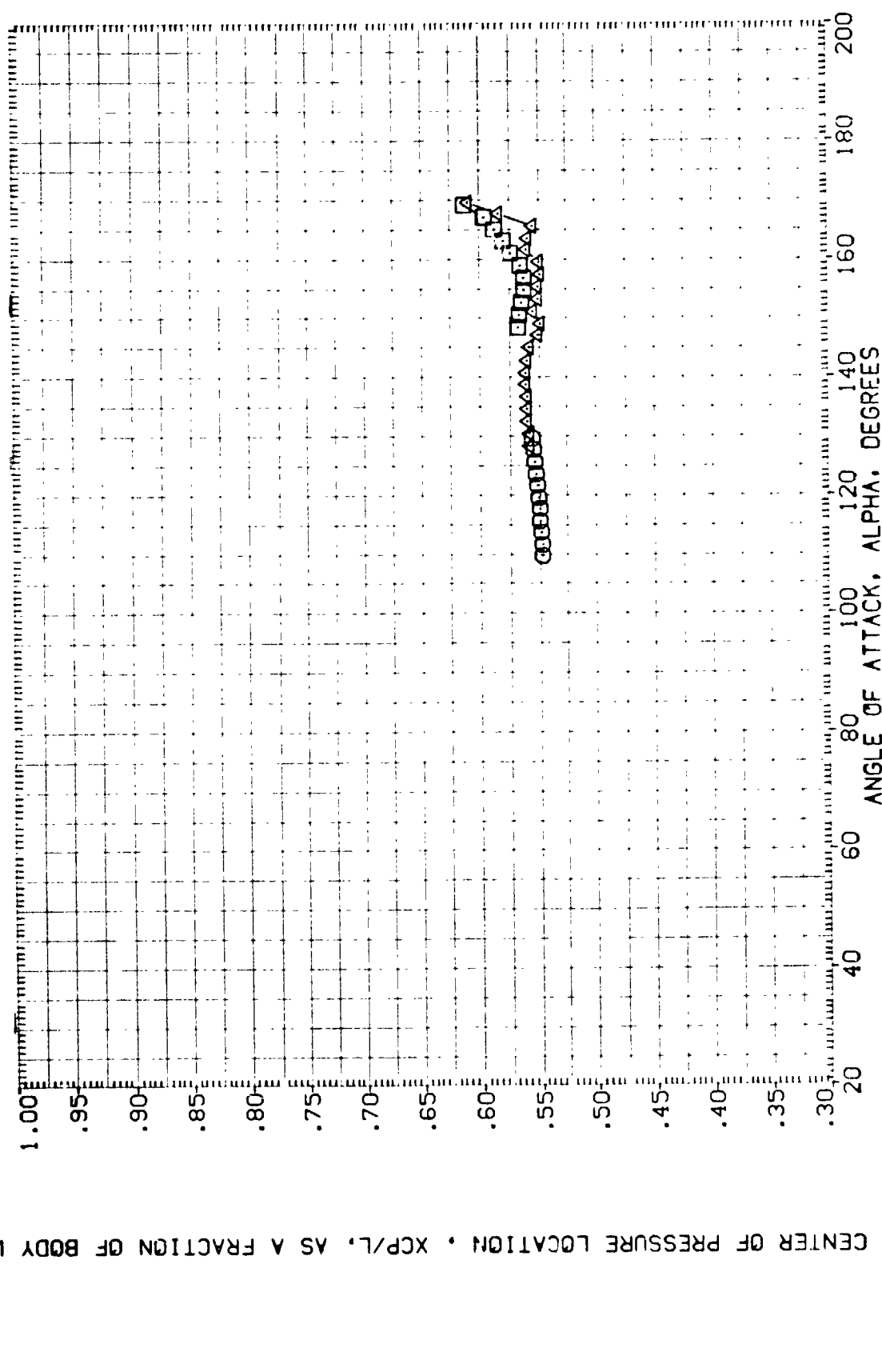


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

(D)MACH = 3.48

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H012)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.	90.000	XMPP 5.7210 IN. XS
			YMPP .0000 IN. YS
			ZMPP .0000 IN. ZS
			SCALE .0055

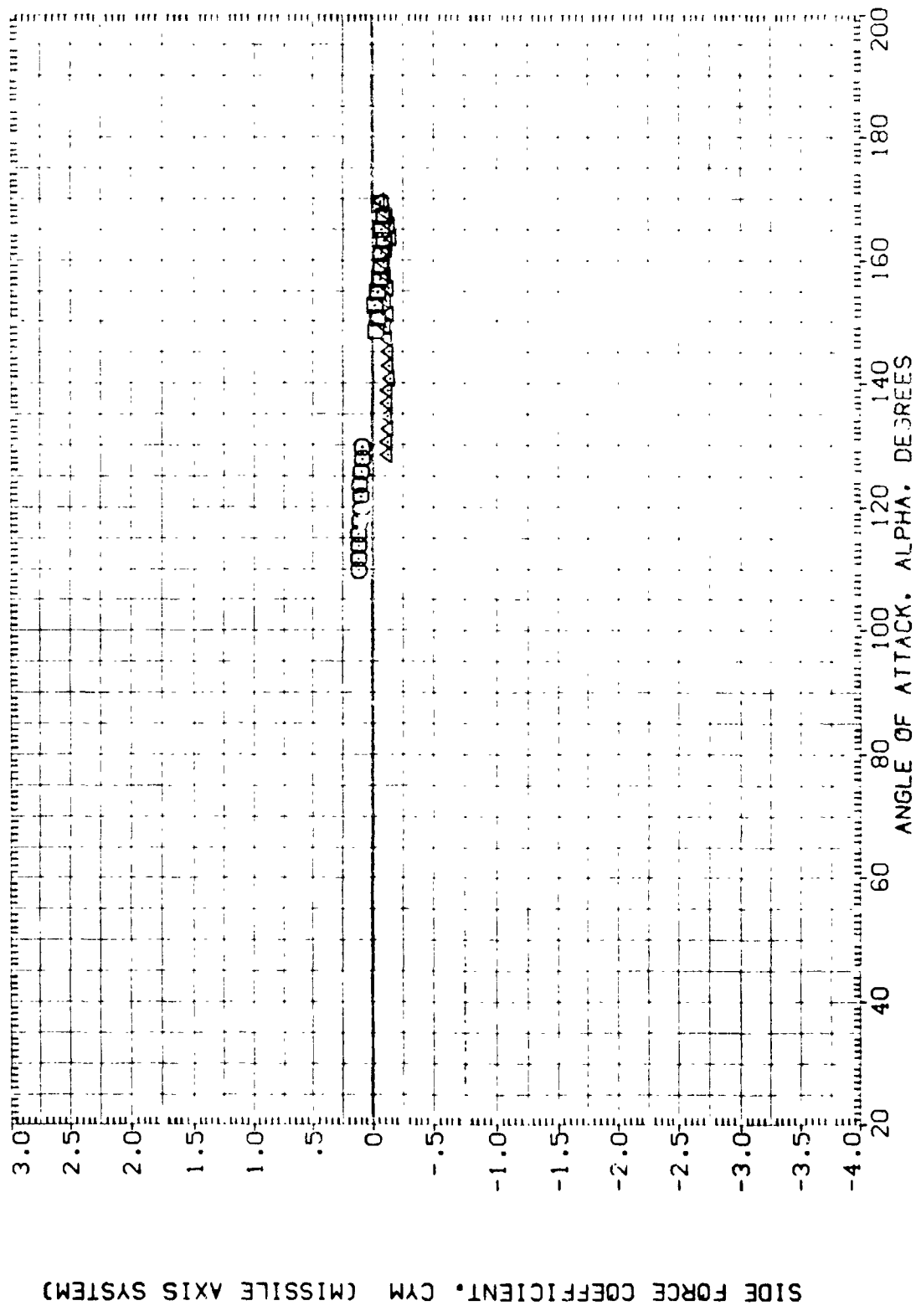


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	SREF .5030 SQ. IN.
(A1H005)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	90.000	LREF .8000 IN.
(A1H012)	DATA NOT AVAILABLE	90.000	BREF .8000 IN.
(A1H012)	MSFC TVT604 (SABF) SRB WITH PROT. 1/3 HEAT SHD.	90.000	XMRP 5.7210 IN. XS
			YMRP .0500 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

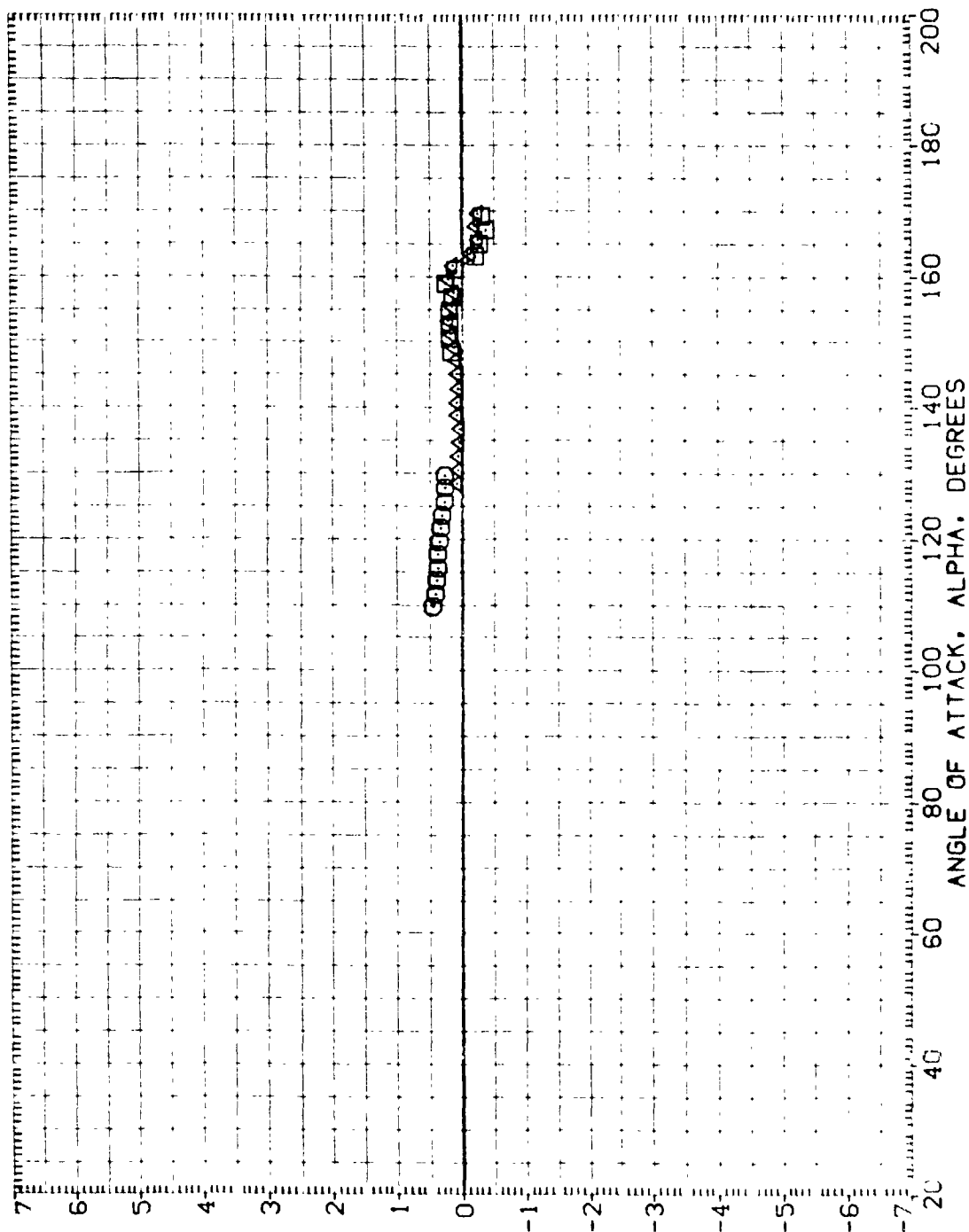


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 90)

	REFERENCE IN	FORMATION
SREF	.503	50. IN.
LREF	.800	80. IN.
BREF	.800	80. IN.
XMRP	5.7210	572.10 IN.
YMRP	.0000	0.00 IN.
ZMRP	.0000	0.00 IN.
SCALE	.0055	55. IN.

111 88888  
0.9999

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION
0000	MSFC TVT604 (SAB)	SAB WITH
(AIHC05)	MSFC TVT604 (SAB)	SAB WITH
(AIHC05)	DATA NOT AVAILABLE	
(AIHC12)	MSFC TVT604 (SAB)	SAB WITH

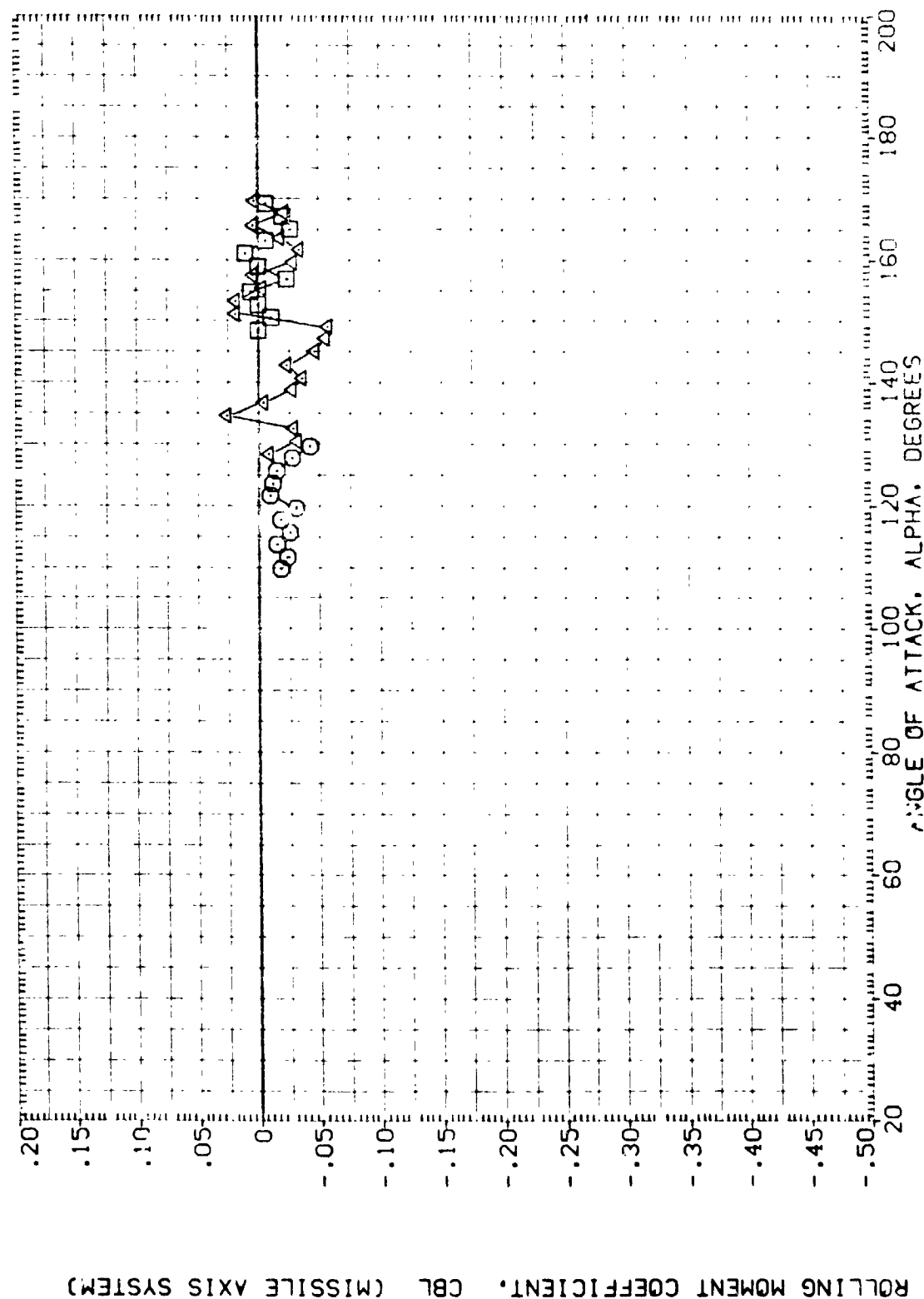


FIGURE 31. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. ( $\text{PHI} = 90^\circ$ )

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(D)MACH = 3.48

DATA SET SYMBOL  
 (A1HC07)  
 (A1HC07)  
 (A1HC 3)  
 (A1HC13)

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES  
 MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.  
 DATA NOT AVAILABLE

PHI  
 180.000  
 180.000  
 180.000

REFERENCE INFORMATION  
 SREF .5030 SQ. IN.  
 LREF .8000 IN.  
 BREF .8000 IN.  
 XMRP 5.7210 IN. XS  
 YMRP .0000 IN. YS  
 ZMRP .0000 IN. ZS  
 SCALE .0055

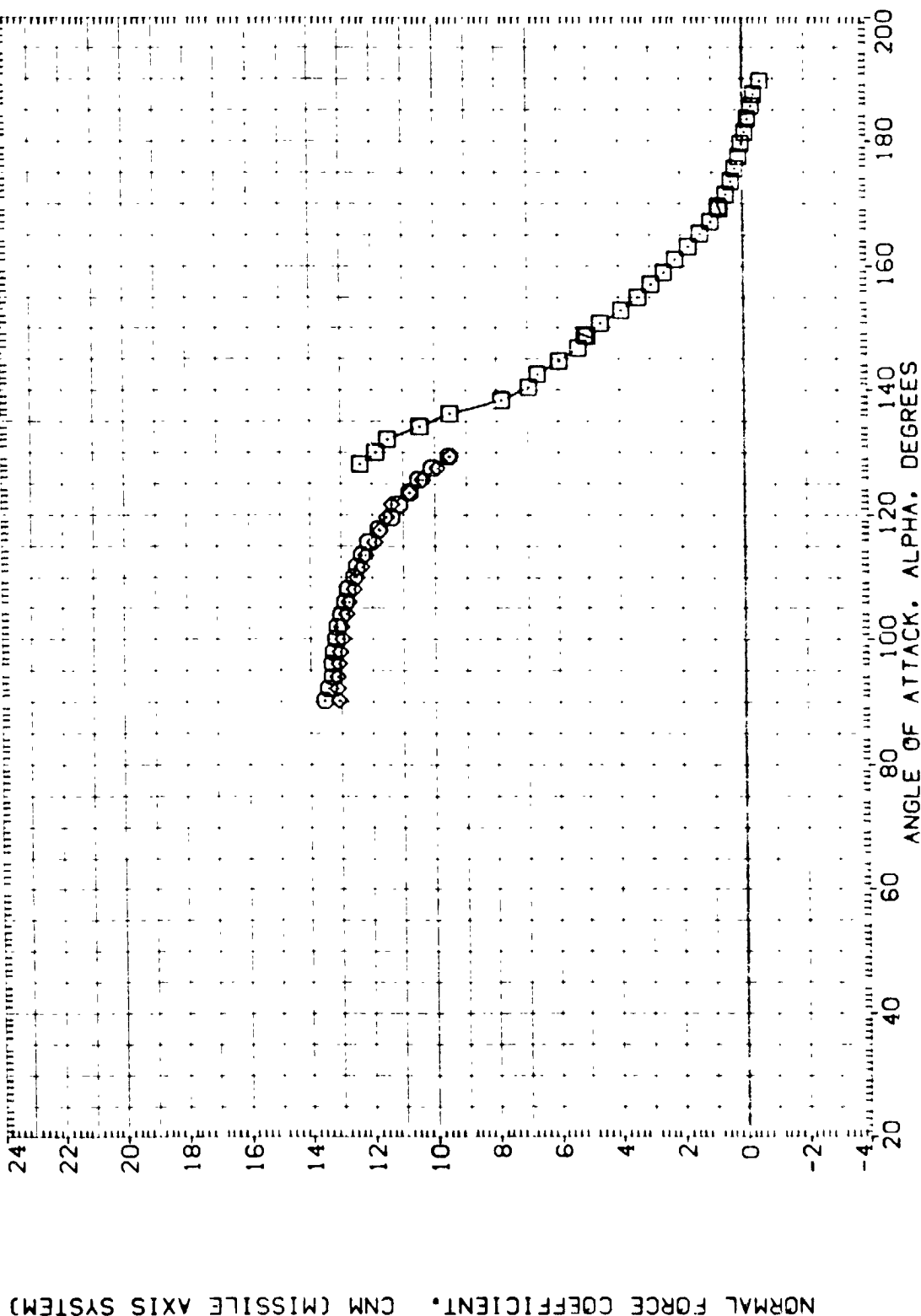


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(A)MACH = .60

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A)M07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A)H07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A)H13)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.    180.000

(A)H013)    DATA NOT AVAILABLE

REFERENCE INFORMATION

SREF    5030    SQ. IN.

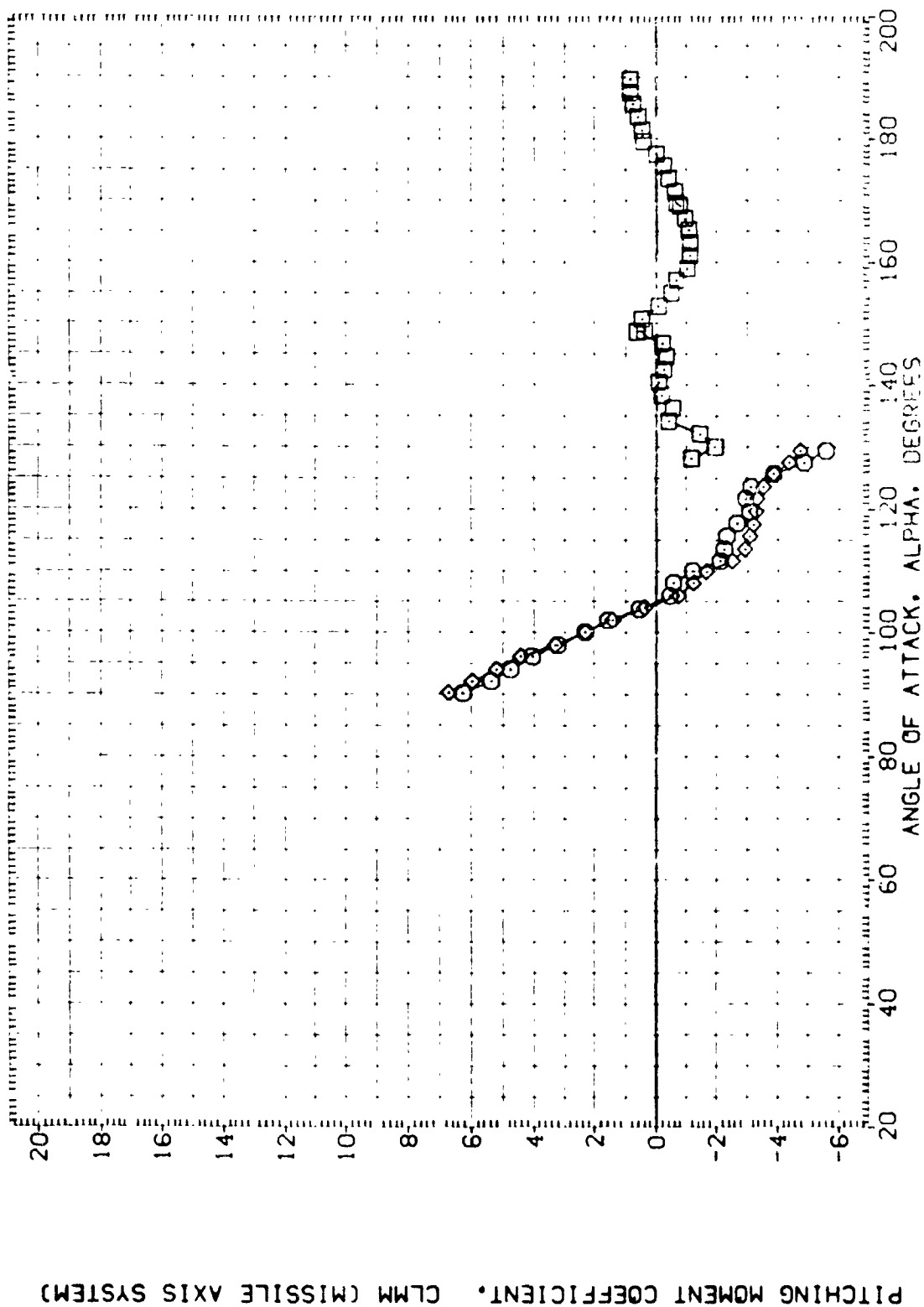
LREF    .8003    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .0053



DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1-HC07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1-HC07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1-HC13)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.    180.000

(A1-HC13)    DATA NOT AVAILABLE

REFERENCE INFORMATION

SREF    .5030    SQ. IN

LREF    .8000    IN.

BREF    .8000    IN.

XMRP    5.7210    IN.    XS

YMRP    .0000    IN.    YS

ZMRP    .0000    IN.    ZS

SCALE    .0055

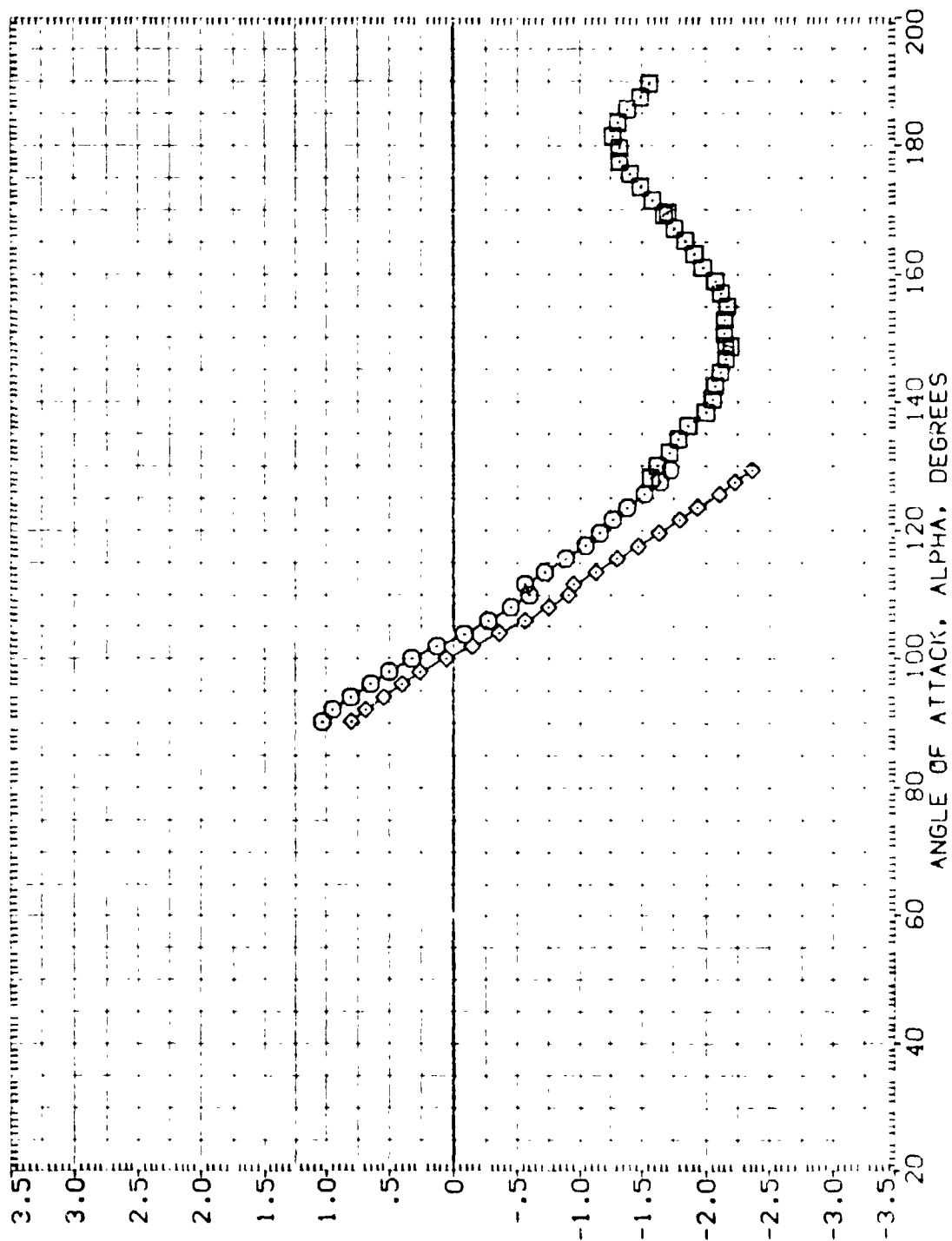


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(A)MACH = .60

DATA SET SYMBOL: (A)H007  
 (A)H013  
 (A)H013

CONFIGURATION DESCRIPTION  
 MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES  
 MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES  
 MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SH.  
 DATA NOT AVAILABLE

PHI  
 180.000  
 180.000  
 180.000

REFERENCE INFORMATION  
 SREF: 50.00 IN.  
 LREF: 80.00 IN.  
 BREF: 80.00 IN.  
 XMRP: 5.7210 IN. XS  
 YMRP: .0000 IN. YS  
 ZMRP: .0000 IN. ZS  
 SCALE: .0055

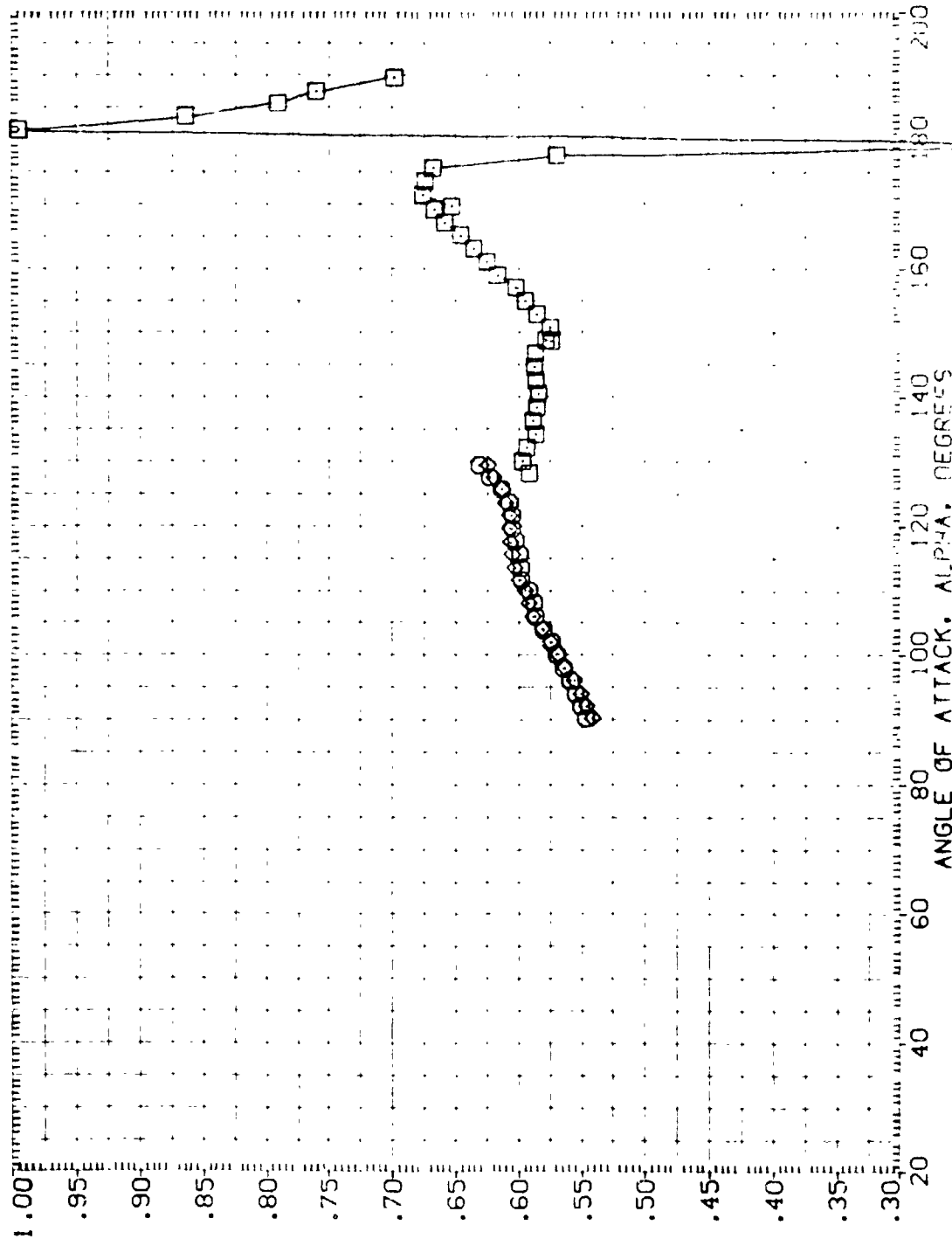


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTERISTICS  
 (A)MACH = .60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A)H007	MSFC 1V1G04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF 5030 50. IN.
(A)H007	MSFC 1V1G04 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF 8000 IN.
(A)H013	MSFC 1V1G04 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	BREF 5.7210 IN.
(A)H013	DATA NOT AVAILABLE	180.000	XMRP 0.0000 IN.
			YMRP 0.0000 IN.
			ZMRP 0.0000 IN.
			SCALE .0055

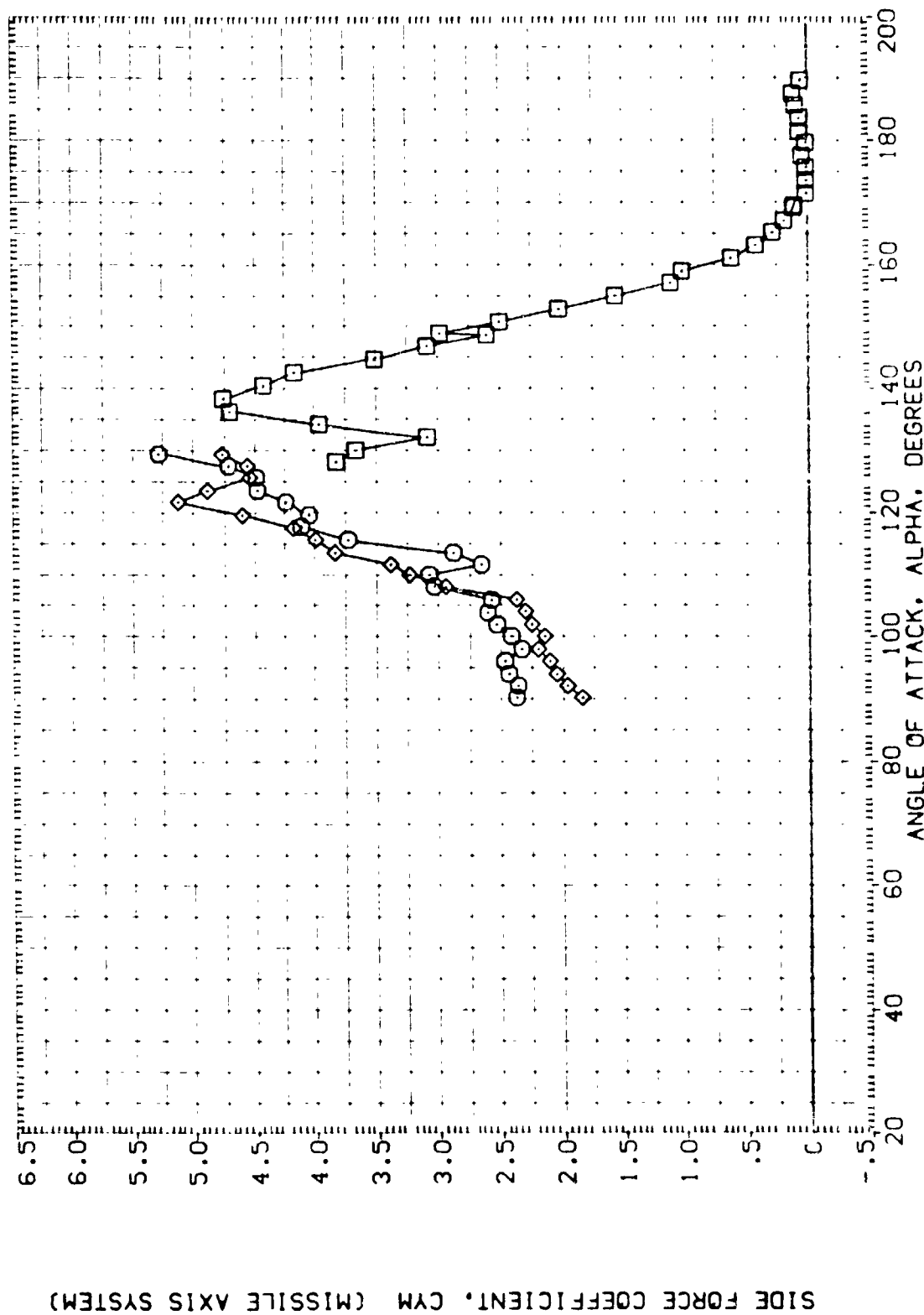


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(A)MACH = .60



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI
(A1-007)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	180.000
(A1-007)	MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES	180.000
(A1-013)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SHD.	180.000
(A1-013)	DATA NOT AVAILABLE	

REFERENCE INFORMATION
SRF : 0.0
LRPF : 0.000
BRPF : 0.000
XRPF : 5.210
YRPF : 0.000
ZRPF : 0.000
SCALE : 0.005

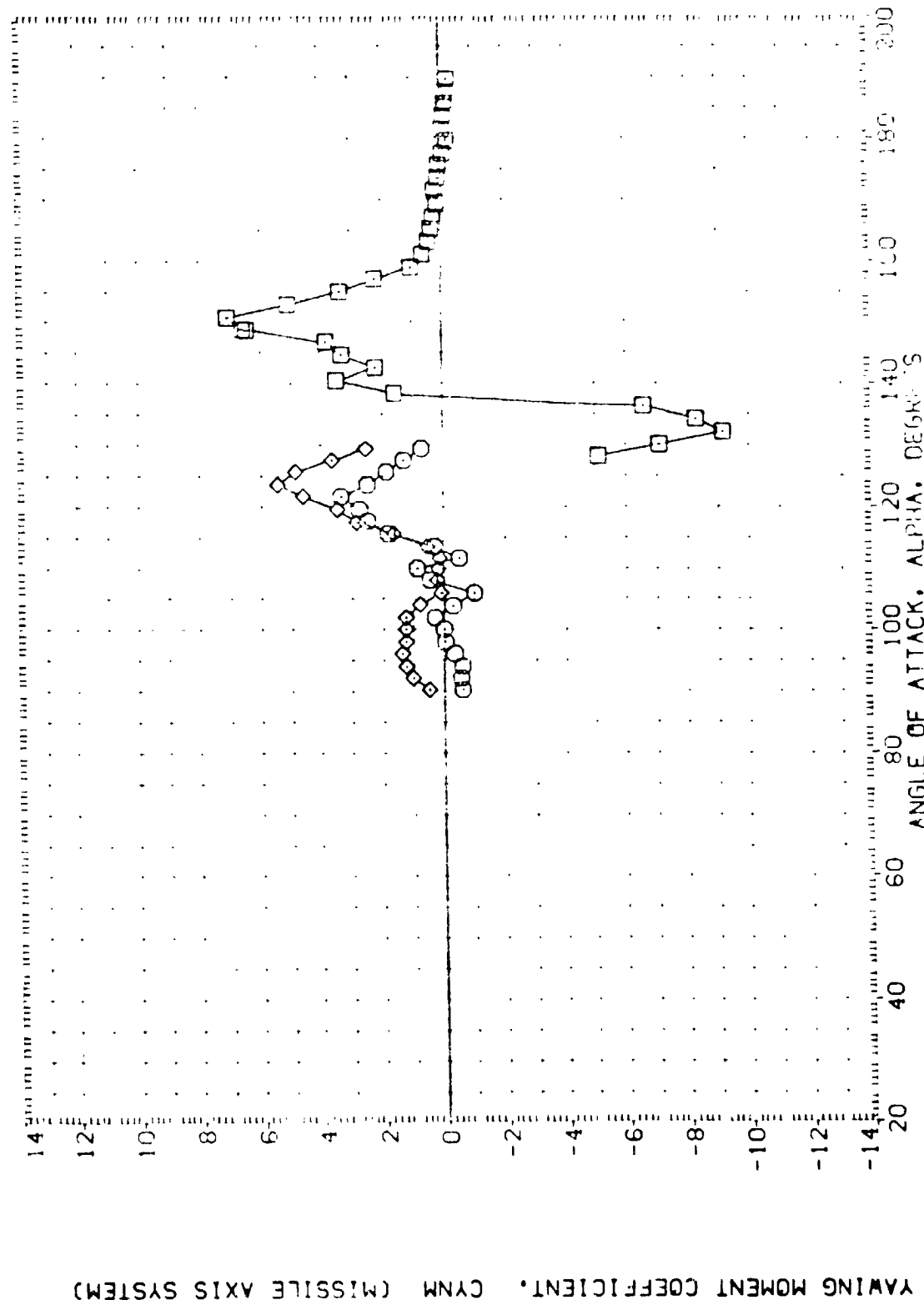


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTERISTICS (PHI = 180)

(A)MACH = .50

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AI-H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 SQ. IN.
(AI-H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AI-H013)	MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.	180.000	SREF .8000 IN.
(AI-H013)	DATA NOT AVAILABLE		XMRP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0035

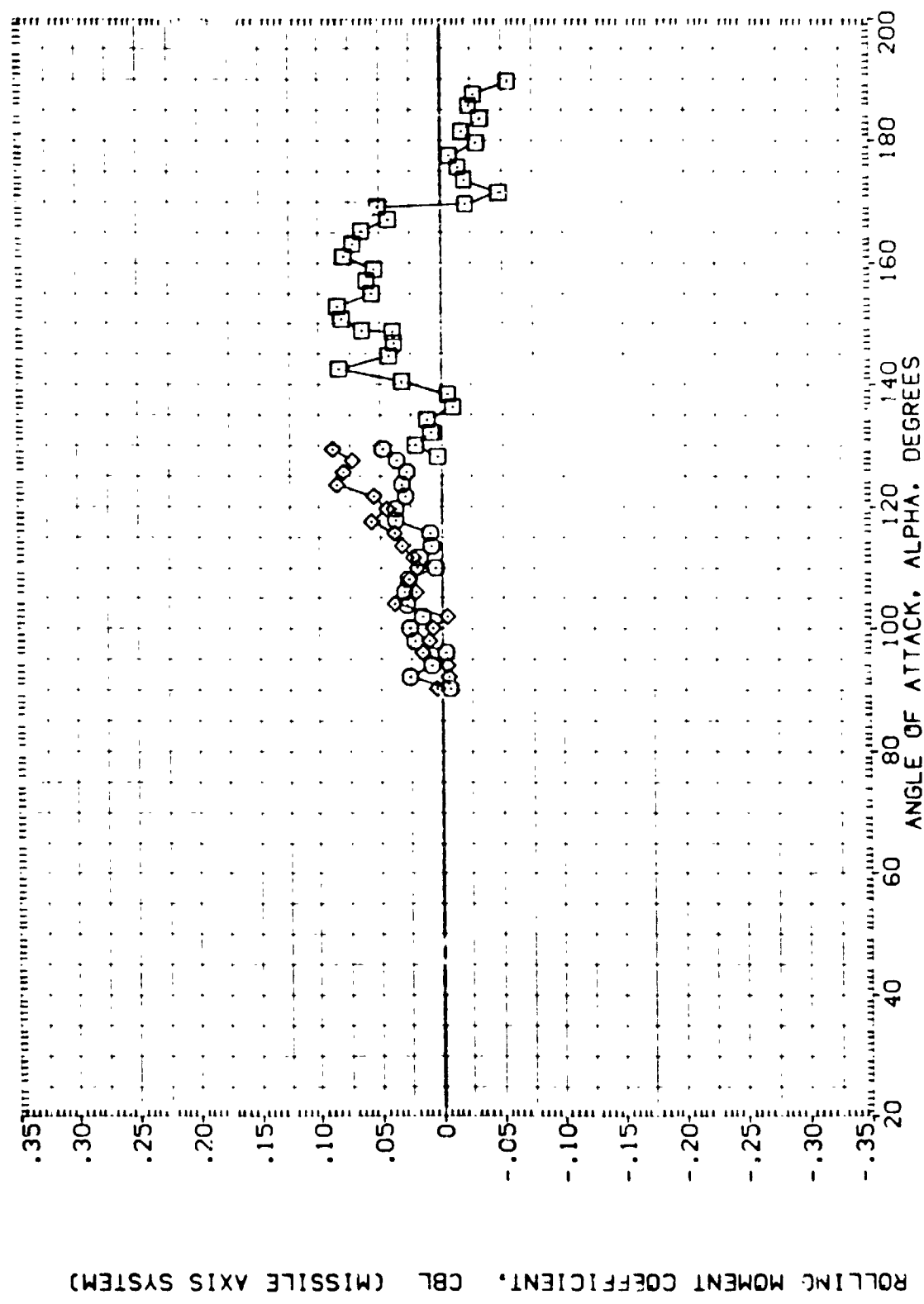


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1HC07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1HC07)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1HC13)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.    180.000

(A1HC13)    DATA NOT AVAILABLE    180.000

REFERENCE INFORMATION

SREF    50.00    IN.

LREF    180.00    IN.

BREF    180.00    IN.

XMRP    5.7210    IN.

YMRP    10.00    IN.

ZMRP    10.00    IN.

SCALE    0.005

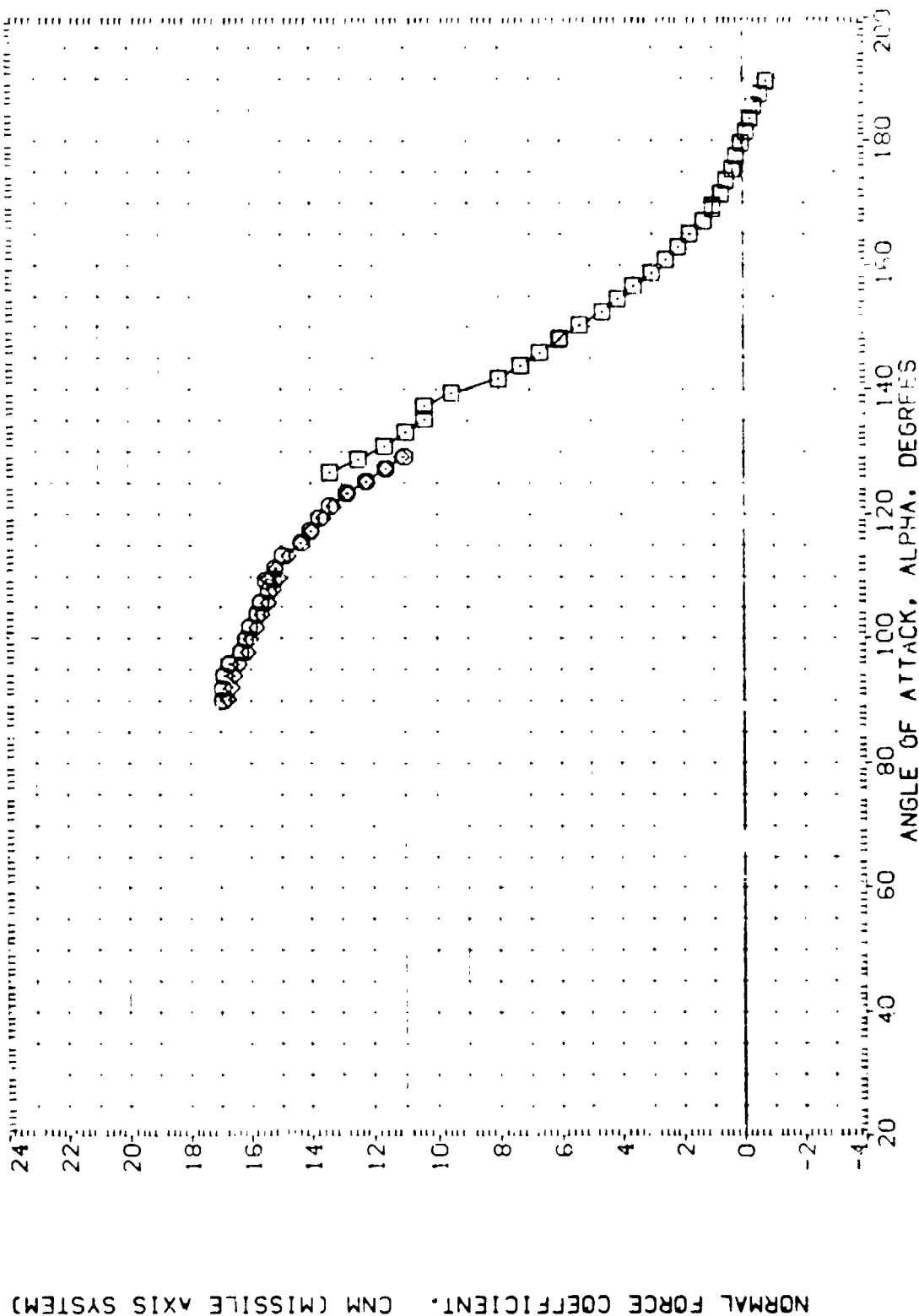


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTERISTICS. (PHI = 180)

(B)MACH = .90    PAGE 75



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 IN.
(A1H007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H013)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SH.	180.000	BREF .8000 IN.
(A1H013)	DATA NOT AVAILABLE		XMPP 5.7210 IN. XS
			YMRP .0000 IN. YS
			ZMRP .0000 IN. ZS
			SCALE .0055

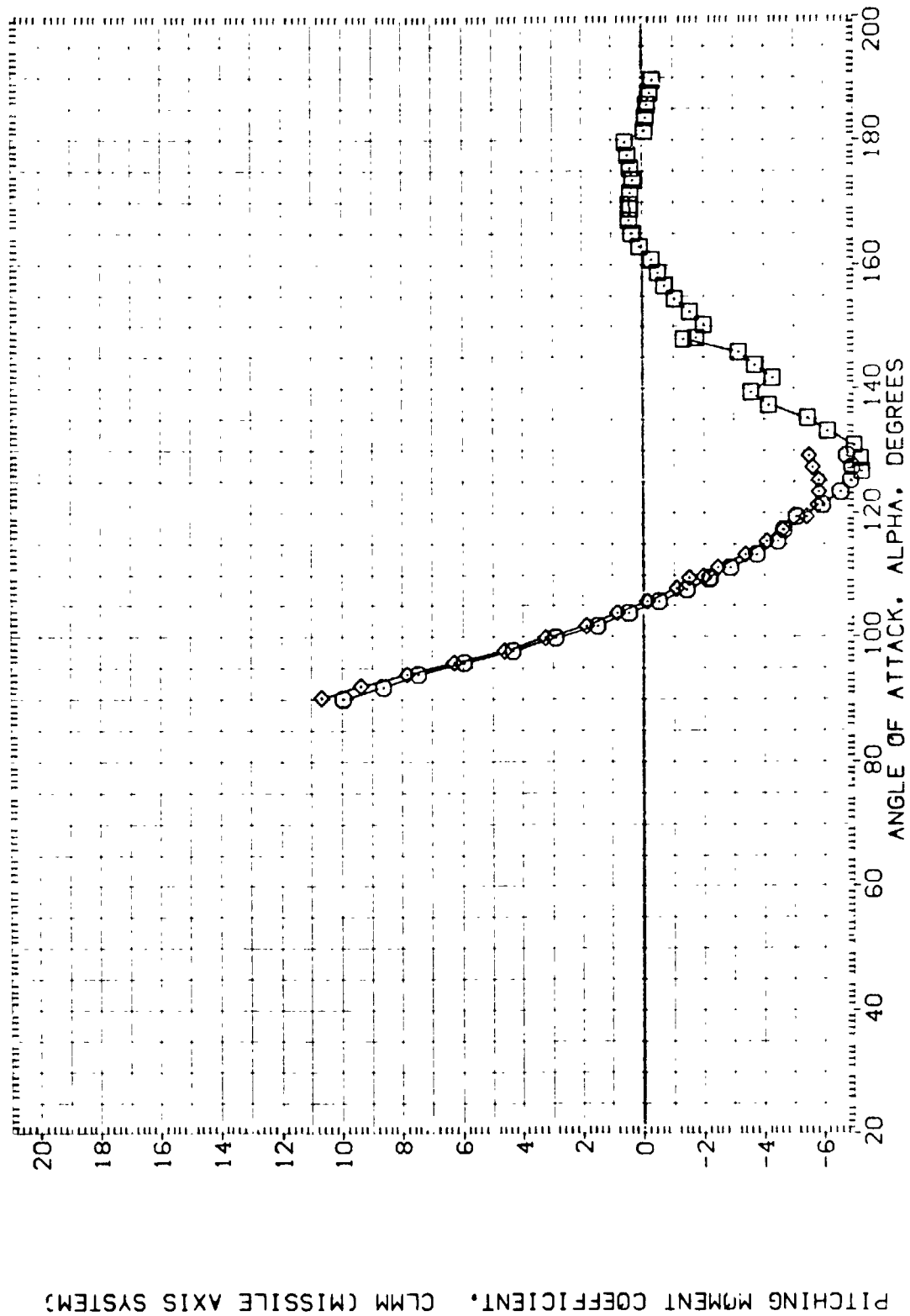


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(B)MACH = .90

DATA SET SYMBOL: (A)H007, (A)H007, (A)H013, (A)H013

CONFIGURATION DESCRIPTION: MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES, MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES, MSFC TVT604 (SABF) SRB WITH PROT. V/G HEAT SHD., DATA NOT AVAILABLE

PHI: 180.000, 180.000, 180.000, 180.000

REFERENCE INFORMATION: SREF 5030 50. IN., LREF 8000 10. IN., BREF 8000 10. IN., XMRP 5.7210 IN., YMRP .0000 IN., ZMRP .0000 IN., SCALE .0055

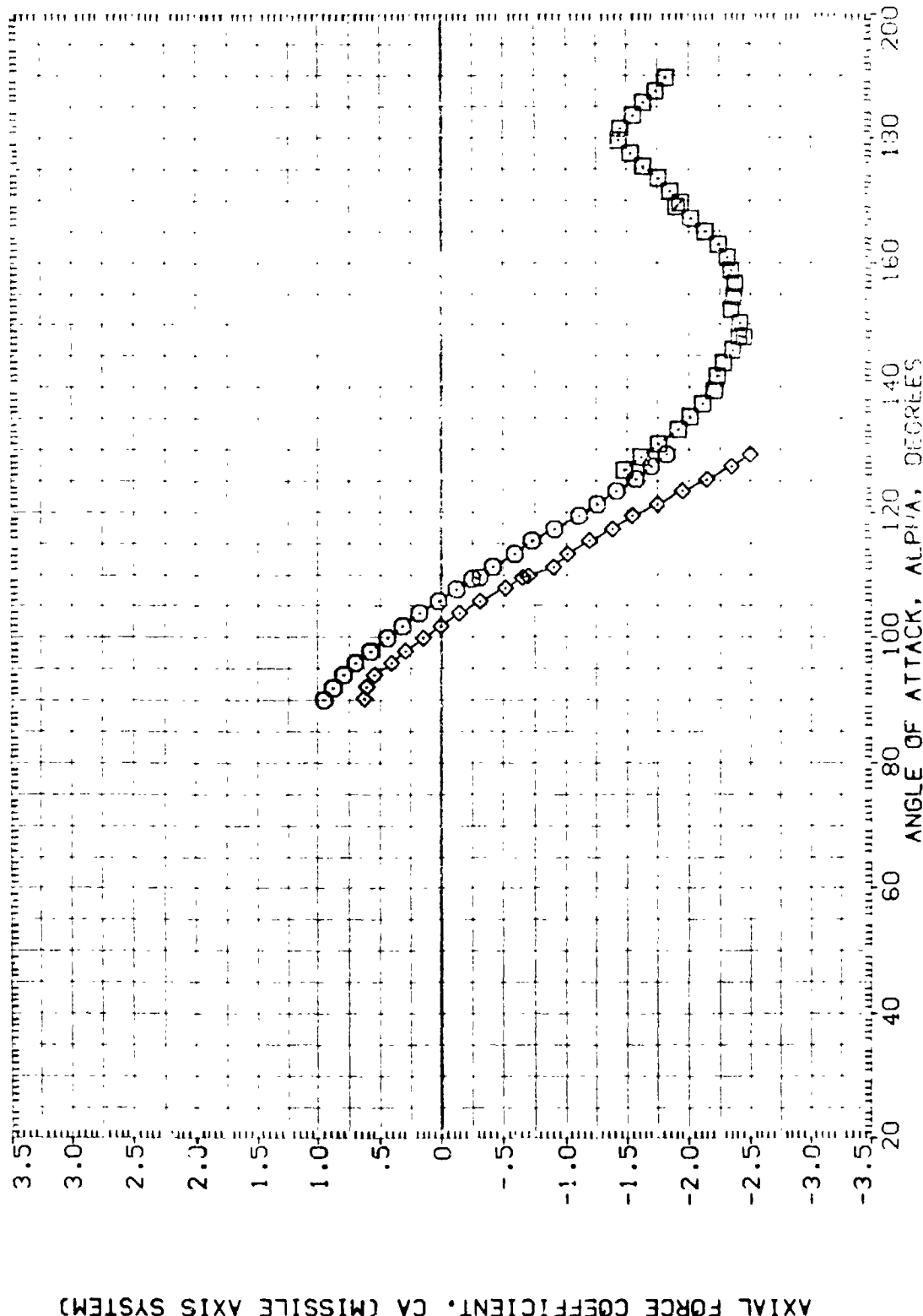


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(B)MACH = .90

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DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(AIHC07)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(AIHC07)      MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES      180.000

(AIHC13)      MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.      180.000

(AIHC13)      DATA NOT AVAILABLE      180.000

REFERENCE INFORMATION

SREF .5030 IN.

LREF .8000 IN.

BREF .8000 IN.

XMRP 5.7210 IN.

YMRP .0000 IN.

ZMRP .0000 IN.

SCALE .0055

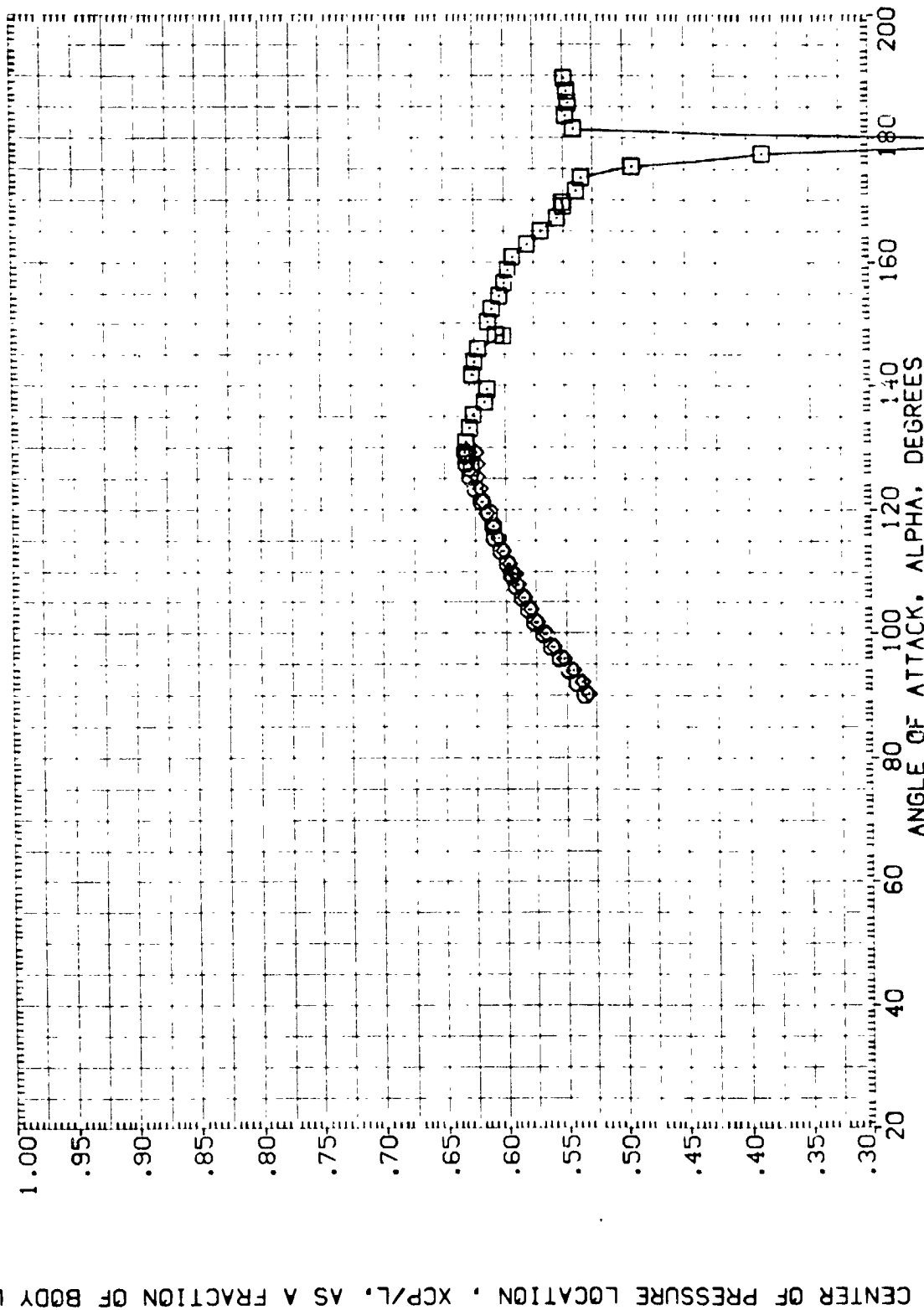


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(B) MACH = .90

REFERENCE INFORMATION

SREF	5030	IN.
LREF	5000	IN.
BREF	5000	IN.
XMRP	5.7210	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0055	

PHI

180.000
180.000
180.000

DATA SET SYMBOL

MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.
MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.

SIDE FORCE COEFFICIENT, C<sub>YM</sub> (MISSILE AXIS SYSTEM)

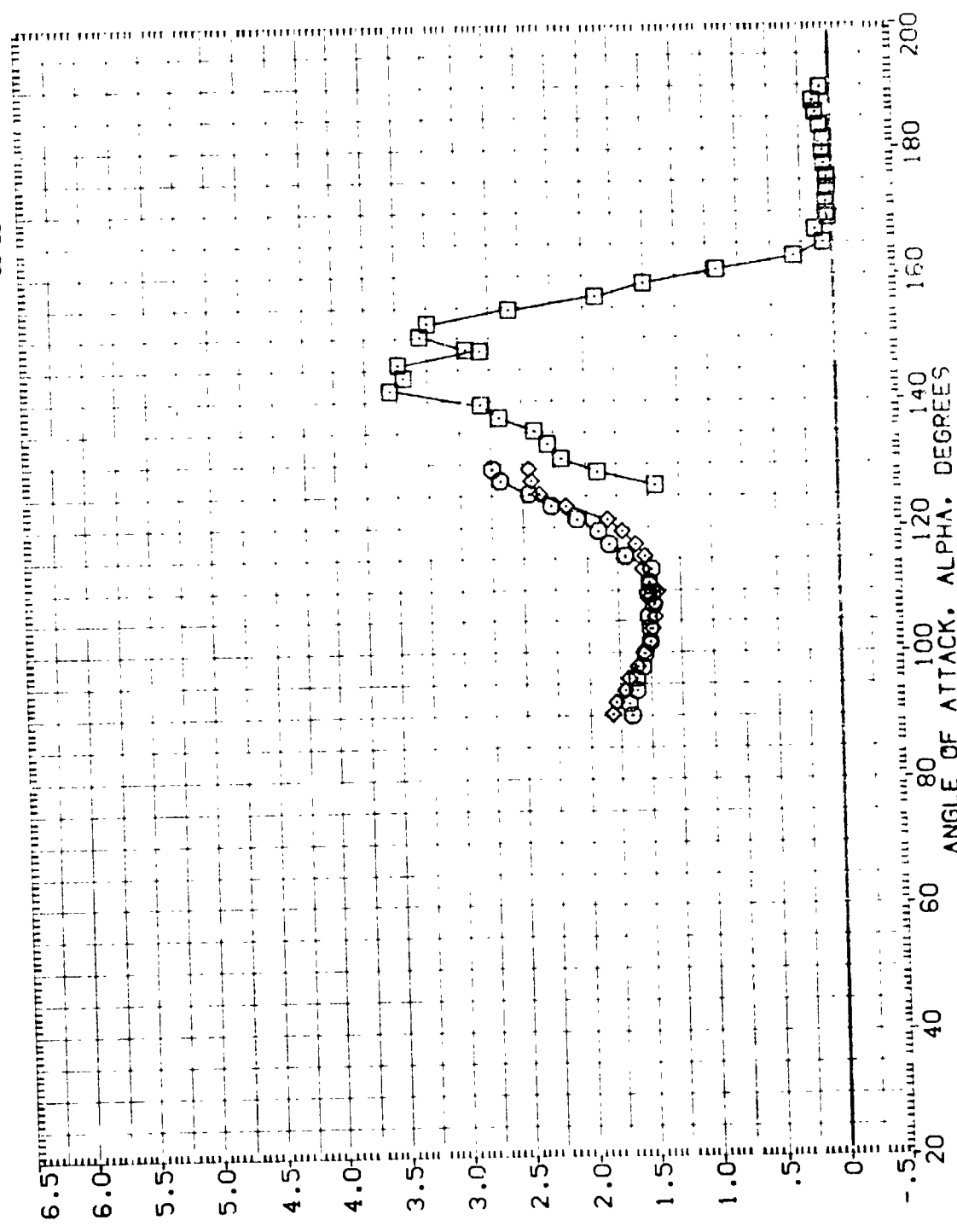


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

DATA SET SYMBOL      CONFIGURATION DESCRIPTION      PHI

(A1H007)      MSFC TVT604 (SABF) SRB VITL ALL PROTRUSANCES      180.000

(A1H007)      MSFC TVT604 (SABF) SRB VITH ALL PROTRUSANCES      180.000

(A1H013)      MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHD.      180.000

(A1H013)      DATA NOT AVAILABLE

REFERENCE INFORMATION

SREF      5030      50. IN.

LREF      18000      IN.

BREF      18000      IN.

XMRP      5.7210      IN. XS

YMRP      .0000      IN. YS

ZMRP      .0000      IN. ZS

SCALE      .0055

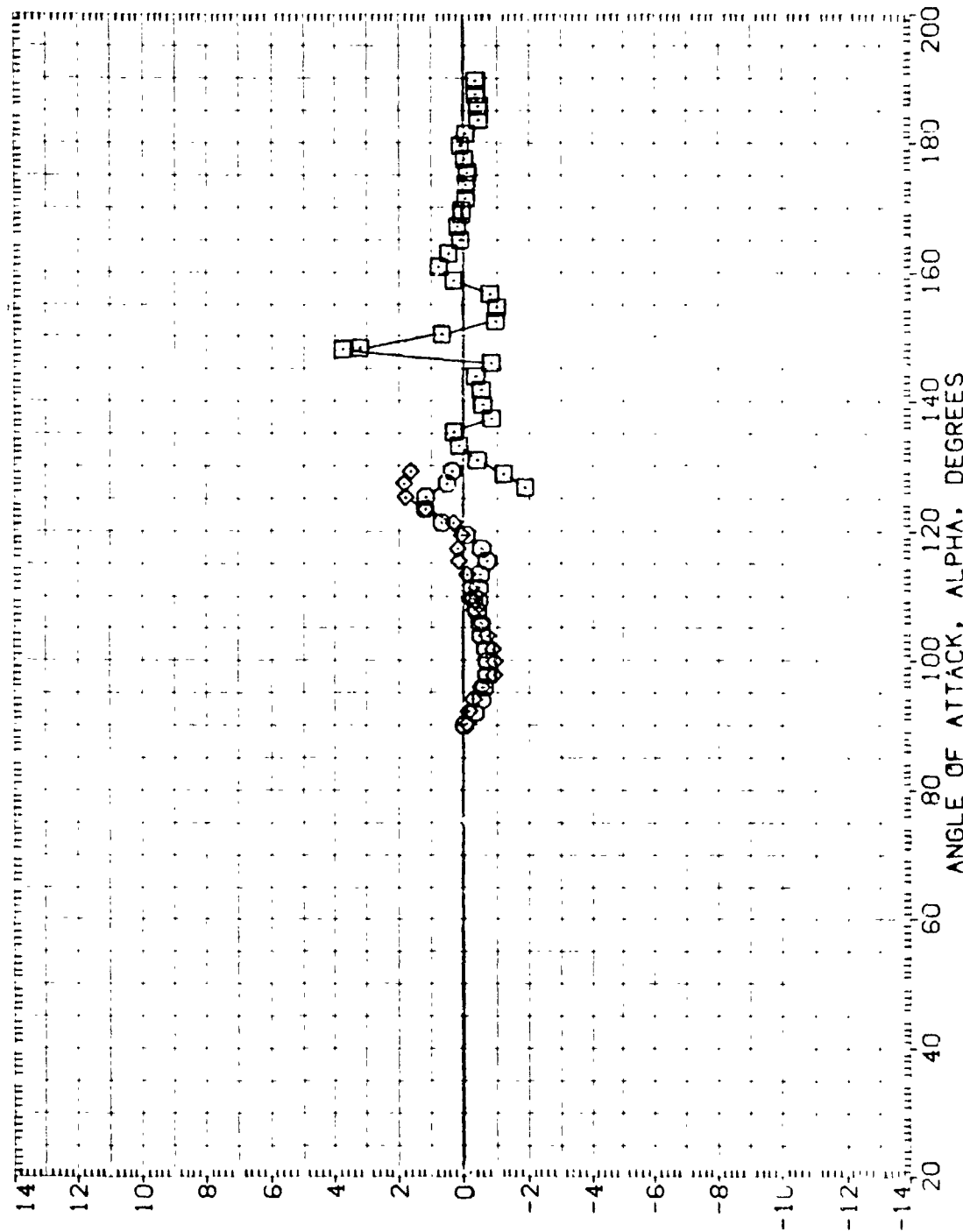


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACT. (PHI = 180)



DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES    180.000

(A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTRUDANCES    180.000

(A1H013)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SH.    180.000

(A1H013)    DATA NOT AVAILABLE    180.000

REFERENCE INFORMATION

SREF    .5030    IN.

LREF    .8000    IN.

BREF    .5000    IN.

XREF    5.7210    IN.

YREF    .0000    IN.

ZREF    .0000    IN.

SCALE    .0055

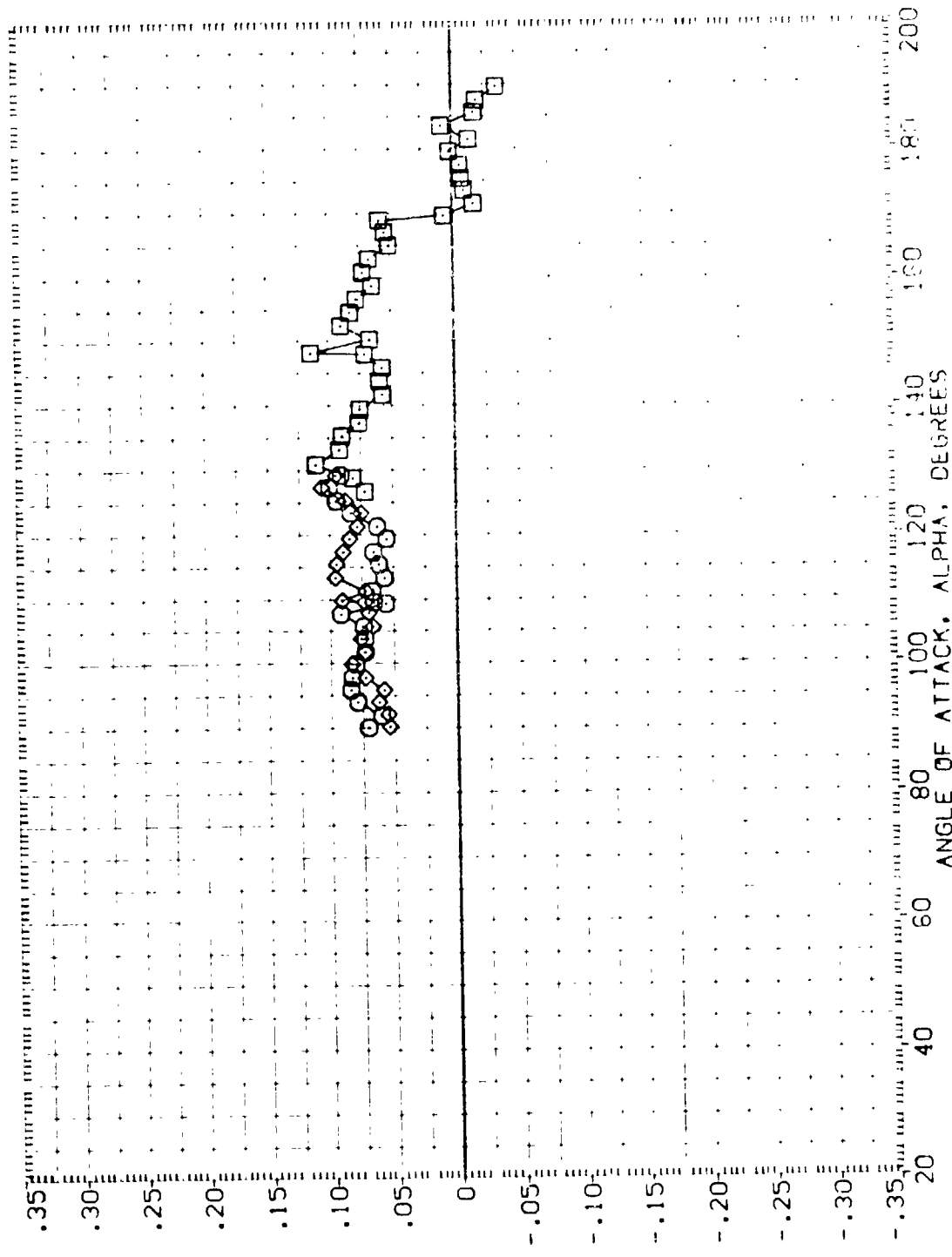


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY - HAWAII, (PHI = 180)

(B)MACH = .90    3AUF    5002

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1-H007)    MSFC TVT604 (SAB) SRB WITH ALL PROTECTORANCES    180.000

(A1-H007)    MSFC TVT604 (SAB) SRB WITH ALL PROTECTORANCES    180.000

(A1-H013)    MSFC TVT604 (SAB) SRB WITH PROT. V/O HEAT SHO.    180.000

(A1-H013)    MSFC TVT604 (SAB) SRB WITH PROT. V/O HEAT SHO.    180.000

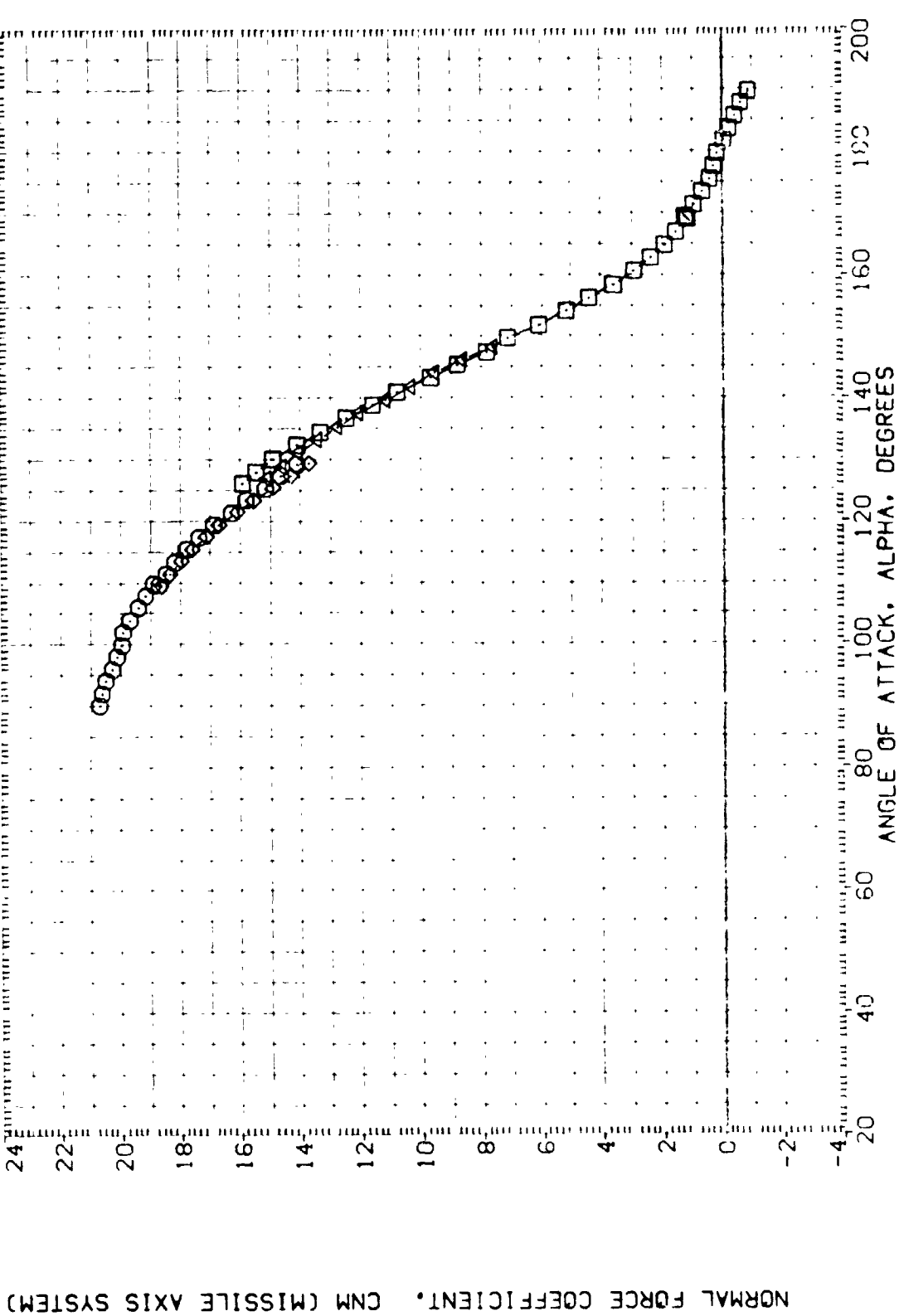


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

(C)MACH = 1.20

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    PHI

(A1H007)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1H013)    MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES    180.000

(A1H013)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.    180.000

(A1H013)    MSFC TVT604 (SABF) SRB WITH PROT. V/O HEAT SHO.    180.000

REFERENCE INFORMATION

SREF    5030    SQ. IN.

LREF    3000    IN.

BREF    8000    IN.

XMRP    5.7210    IN. XS

YMRP    1.0000    IN. YS

ZMRP    0.0000    IN. ZS

SCALE    0055

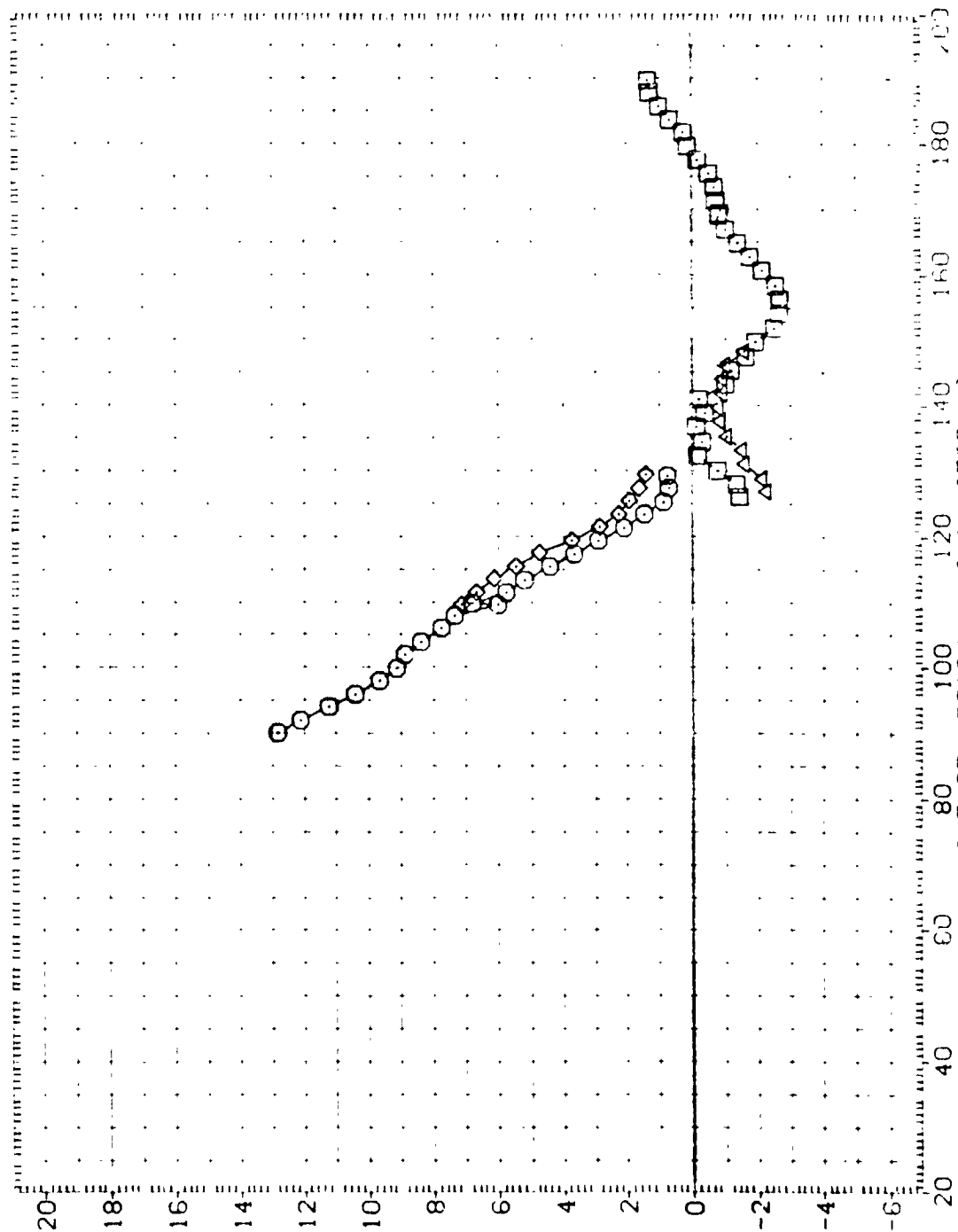


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY AT IMPACT. (PHI = 180)

(C)MACH = 1.20

DATA SET SYMBOL	CONF IGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 IN.
(AIH007)	MSFC TVT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(AIH013)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SH.	180.000	BREF .8000 IN.
(AIH013)	MSFC TVT604 (SABF) SRB WITH PROT. W/O HEAT SH.	180.000	XHREF 5.7210 IN.
			YHREF .0000 IN.
			ZHREF .0000 IN.
			SCALE .0055

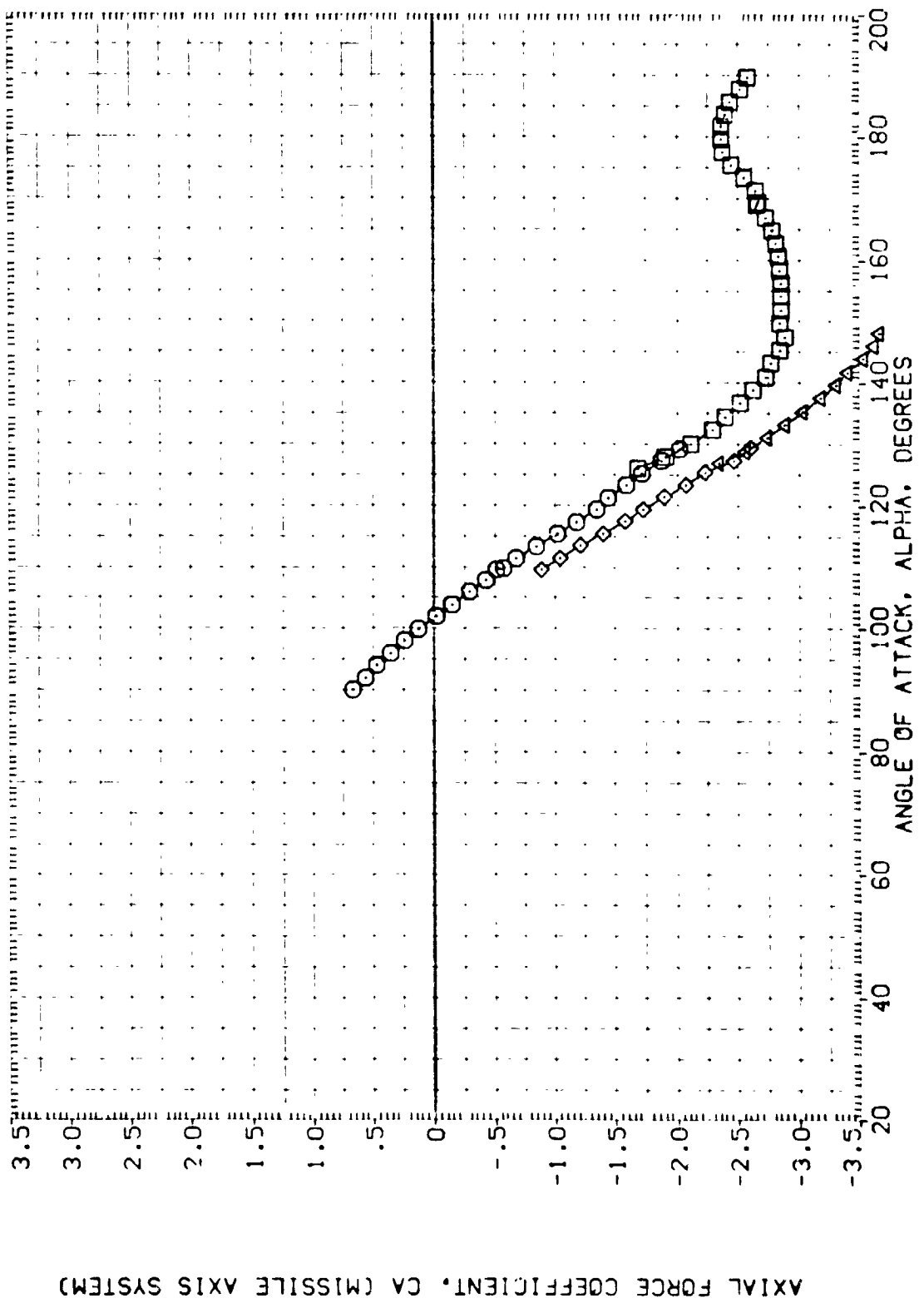


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

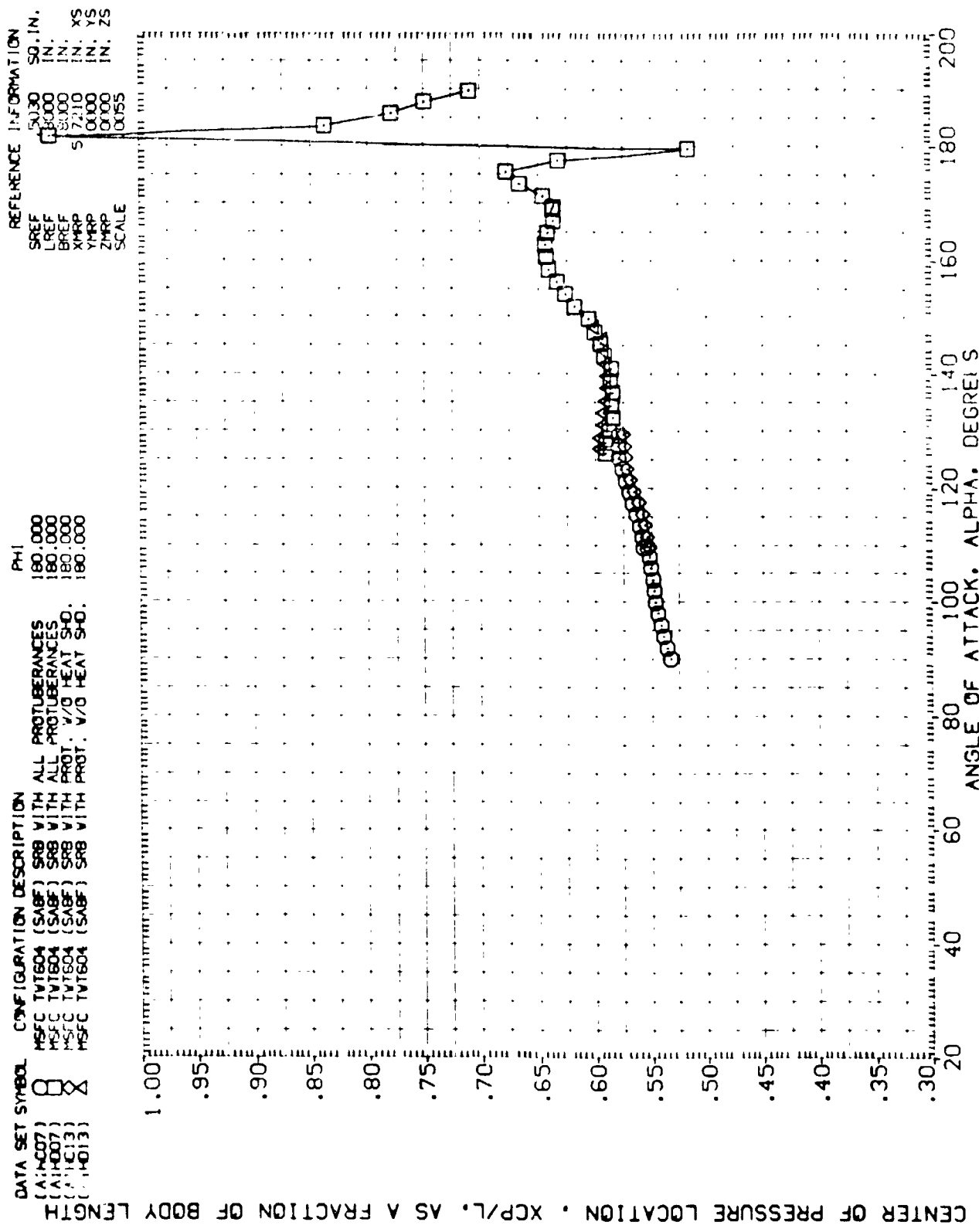


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1H07)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF .5030 IN.
(A1H07)	MSFC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF .8000 IN.
(A1H13)	MSFC TV1604 (SABF) SRB WITH PROT. 1/2 HEAT SHD.	180.000	GRLEF .8000 IN.
(A1H13)	MSFC TV1604 (SABF) SRB WITH PROT. 1/2 HEAT SHD.	180.000	YMRP 5.7210 IN.
(A1H13)	MSFC TV1604 (SABF) SRB WITH PROT. 1/2 HEAT SHD.	180.000	ZMRP .0000 IN.
			SCALE .0055

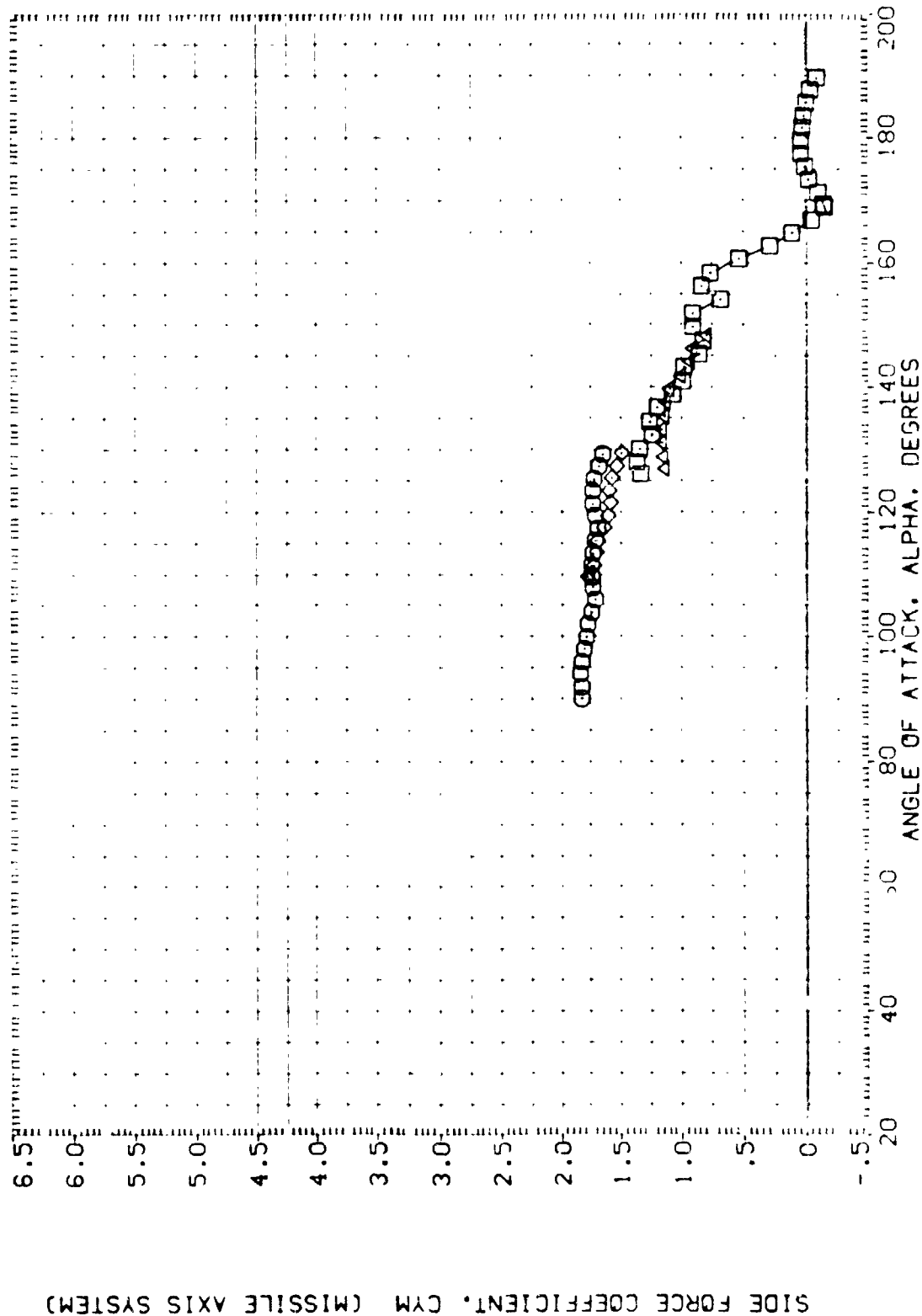


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE ORIENTATION
(A1H007)	HSCF TWT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF
(A1H007)	HSCF TWT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	RREF
(A1H007)	HSCF TWT604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	XREF
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	YREF
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	ZREF
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	THRP
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	TRPR
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	SCALE
(A1H013)	HSCF TWT604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	SCALE

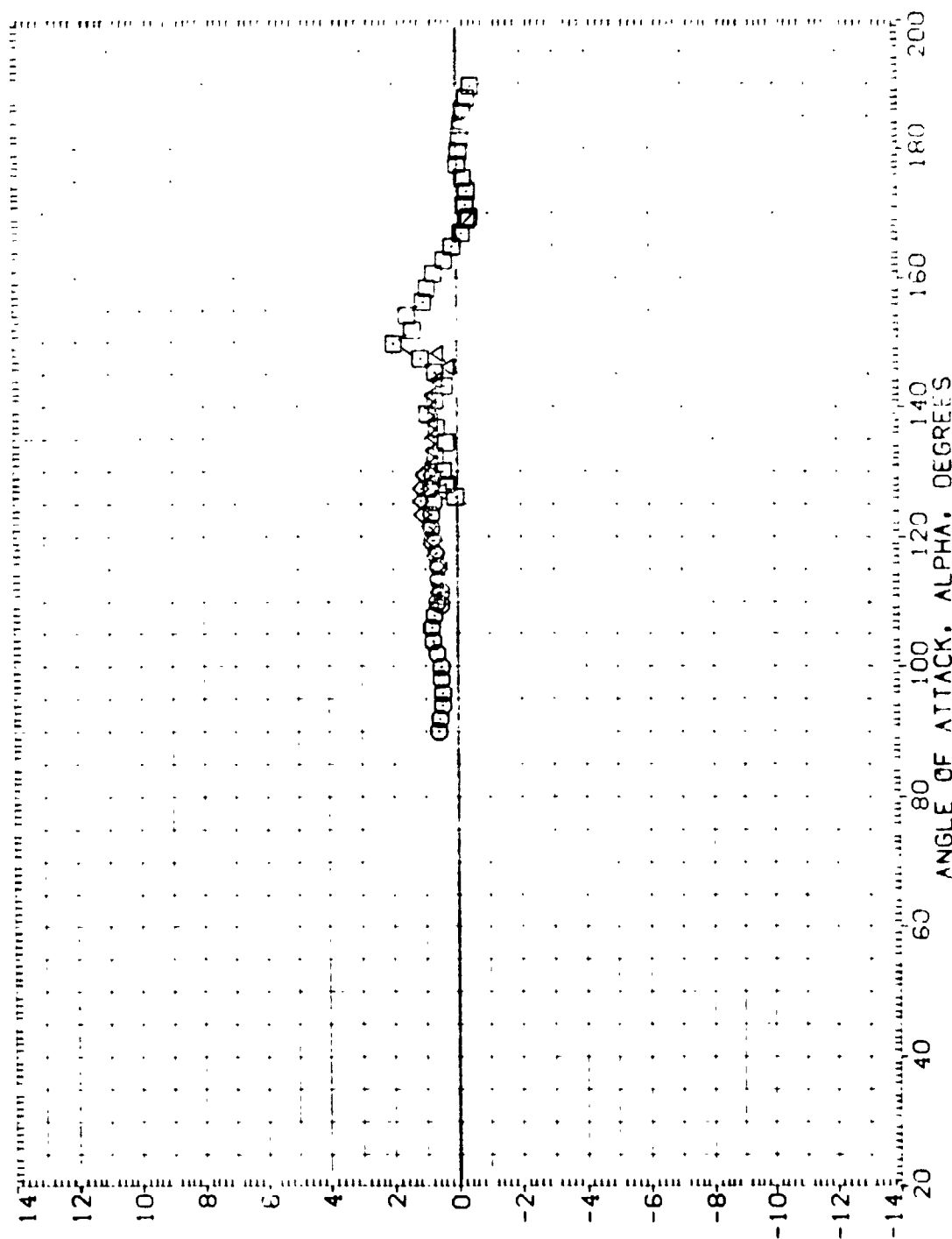


FIGURE 32. EFFECT OF HEAT SHIELDS ON SRB STATIC STABILITY PARABOL. (PHI = 180)

CCMAC = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI	REFERENCE INFORMATION
(A1)C07)	M5FC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	SREF
(A1)C07)	M5FC TV1604 (SABF) SRB WITH ALL PROTUBERANCES	180.000	LREF
(A1)C13)	M5FC TV1604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	SREF
(A1)C13)	M5FC TV1604 (SABF) SRB WITH PROT. V/O HEAT SHD.	180.000	XMRP
			YMRP
			ZMRP
			SCALE
			.0055

ROLLING MOMENT COEFFICIENT, CBL (MISSILE AXIS SYSTEM)

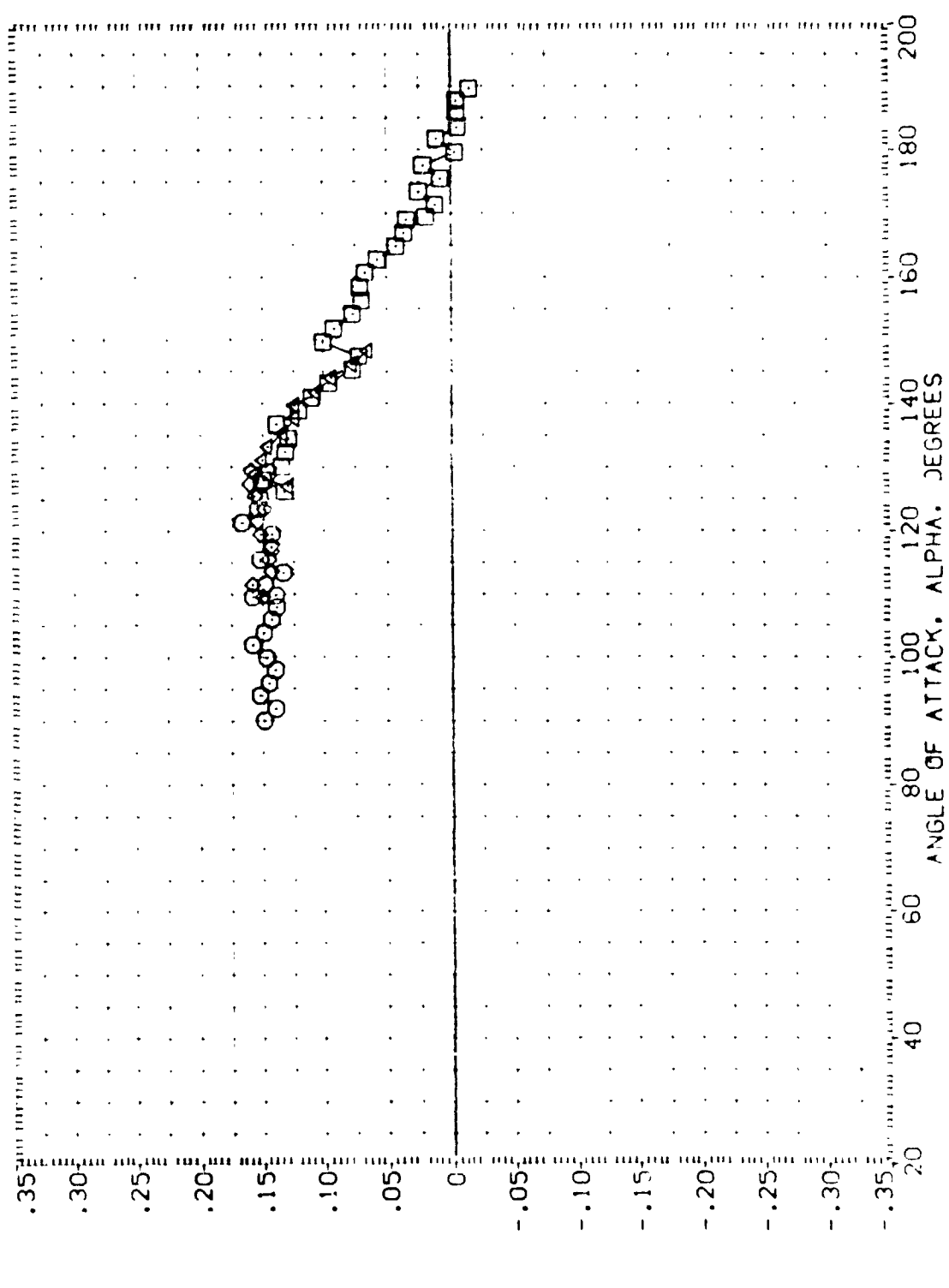


FIGURE 32. EFFECT OF HEAT SHIELD ON SRB STATIC STABILITY CHARACTER. (PHI = 180)



APPENDIX

TABULATED SOURCE DATA

Tabulations of plotted data are available  
from DMS upon request.

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PARAMETRIC DATA

BETA = .000  
 NOZZLE = .000  
 PHI = .000

REFERENCE DATA

SREF = .5030 SQ IN.  
 LREF = .8000 IN.  
 BREF = .8000 IN.  
 SCALE = .0055  
 XMRP = 5.7210 IN. XS  
 YMRP = .0000 IN. YS  
 ZMRP = .0000 IN. ZS

RUN NO. 210/ 0 RN/L = 5.33 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.406	-9.421	-72960	-96750	.92540	-.00260	-.12320	-.00700	.47520	-.24820	-.9460	-.29110
.406	-7.510	-60420	-70240	.89840	.01230	-.11350	-.00910	.48850	-.27420	-.29010	-.27190
.406	-5.470	-43910	-48480	.86830	.03020	-.03900	-.00520	.49330	-.27350	-.26770	-.26650
.406	-3.470	-26710	-17800	.82940	-.00540	-.08940	.00490	.52000	-.24370	-.27450	-.24140
.406	-1.460	.10020	-.04090	.80480	-.00410	-.06650	-.04650	.50010	-.24520	-.23700	-.24050
.408	.560	.13410	.10300	.80340	-.00010	.09570	.00810	.51700	-.23120	-.24110	-.26690
.406	2.560	.30470	.12630	.82550	-.04900	-.02250	-.04530	.54950	-.21870	-.23860	-.25500
.405	4.560	.44130	.19650	.85320	-.04750	-.01800	-.01970	.54700	-.23870	-.24460	-.26580
.406	6.600	.60570	.53740	.87910	-.06550	.02200	-.02760	.51100	-.25380	-.23890	-.26460
.406	8.620	.77700	.76140	.90910	-.08350	-.01300	-.05010	.50340	-.27260	-.26790	-.26900
.406	10.510	.91110	.99560	.93330	-.06750	.03630	.01720	.49420	-.29600	-.30190	-.30660
.406	.540	.11470	-.01340	.83210	.00080	.03660	.00670	.59150	-.24690	-.23950	-.24890
GRADIENT		.00073	.04563	.00340	-.00643	.01289	-.00142	.00176	.00182	-.00111	-.00315

RUN NO. 209/ 0 RN/L = 4.34 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.499	-9.410	-72190	-80420	.97250	.02960	-.08090	-.00860	.49250	-.26000	-.28990	-.27550
.499	-7.500	-58160	-47920	.93210	.01100	-.07640	-.00600	.51620	-.25830	-.26790	-.25710
.499	-5.470	-44390	-28030	.89730	.00960	-.10070	.02500	.53190	-.24040	-.24990	-.23680
.499	3.430	-27420	-10040	.83930	-.01230	.00480	.03430	.55350	-.22200	-.23160	-.22560
.499	-1.460	.10130	.04130	.83600	-.00370	.01230	.02640	.61670	-.22040	-.22760	-.22040
.499	.540	.10330	.08480	.83500	-.00010	.07850	.01020	.51790	-.21240	-.22320	-.22680
.499	2.550	.27030	.01320	.83060	.00350	.08150	-.02220	.57940	-.20670	-.22330	-.22680
.499	4.560	.41220	.21080	.87220	-.04770	.06060	-.02740	.54160	-.22170	-.22760	-.23830
.499	6.620	.58470	.51870	.89710	-.08250	.06920	.03400	.51100	-.22800	-.23520	-.25410
.499	8.620	.77240	.77620	.94530	-.04960	.09520	.03140	.50350	-.24440	-.26230	-.27310
.499	10.510	.92140	.96750	.94130	-.05190	.00890	.01240	.49770	-.27550	-.28380	-.28620
.499	.540	.10670	-.04040	.83060	-.04960	.01730	.01290	.61430	-.21890	-.22600	-.22840
GRADIENT		.08674	.02957	.00290	-.00561	.00899	-.00855	-.00302	.00071	.00061	-.00158

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, 5A-08

PAGE 2

MSFC TH1604 (SABF) SRB CLEAN W/RINGS

(IRH001) (10 JUL 75)

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = .7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

RUN NO. 208/ 0 RVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
.598	-9.440	-81100	-68590	.98820	-.00750	-.10570	.06710	.49430	-.26790	-.29900	-.28480
.598	-7.520	-66600	-64200	.94110	-.00690	-.15040	.04890	.50470	-.26370	-.27360	-.25920
.598	-5.490	-48860	-33730	.90040	.01800	-.10080	.05750	.52710	-.24870	-.25860	-.24330
.598	-3.480	-30390	-12300	.86520	.00490	-.11090	.04940	.55030	-.23020	-.24180	-.22850
.598	-1.470	-17190	-11100	.84770	-.05590	-.11290	.04270	.53070	-.22430	-.23140	-.23050
.598	.540	.07770	-.02950	.84070	-.00060	.00830	.04580	.61440	-.20860	-.22550	-.22640
.598	2.550	23650	-.02740	.86620	-.06090	.02100	.06570	.58290	-.19860	-.22370	-.23170
.598	4.570	39050	.16160	.88290	-.06070	.05090	.07680	.54960	-.23020	-.24540	-.25460
.598	6.630	54570	.32150	.91330	-.07430	.00890	.05020	.53530	-.23670	-.24210	-.25080
.598	8.680	69740	.63610	.95520	-.05050	.04150	.05740	.50900	-.25020	-.26360	-.27080
.598	10.620	92650	.95270	.98020	-.06610	-.05100	.05100	.49950	-.27520	-.28680	-.28850
.599	.560	.08170	.06480	.84910	-.03900	.02280	.06950	.51870	-.21090	-.23140	-.23230
	GRADIENT	.08932	.03246	.00258	-.00677	.02274	.00387	.00301	.00261	.00153	-.00174

RUN NO. 207/ 0 RVL = 6.28 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
.899	-9.510	-92590	-63770	1.18810	-.03090	-.07240	.00100	.52720	-.28820	-.29870	-.27610
.899	-7.560	-69440	-39140	1.15220	-.03160	-.11030	.00230	.53740	-.27040	-.27870	-.25580
.899	-5.510	-50270	-.16010	1.10760	-.03100	-.07490	.00520	.55740	-.25180	-.25390	-.23570
.899	-3.500	-35650	-.03530	1.07460	-.03720	-.03370	-.01940	.57140	-.23840	-.24370	-.23100
.899	-1.480	-17640	.01570	1.04510	-.04160	.00770	-.00940	.59110	-.22570	-.22840	-.22310
.899	.540	.05550	-.00670	1.04270	-.05940	.04600	-.00190	.59170	-.20930	-.22560	-.22930
.899	2.560	24430	-.04320	1.05830	-.04840	.07490	-.00990	.59780	-.21780	-.22930	-.23670
.899	4.590	42810	.07000	1.07540	-.07720	.06910	-.00070	.57000	-.21540	-.23010	-.24120
.899	6.640	60330	.21950	1.12820	-.06290	.01430	-.00750	.55370	-.23630	-.23640	-.25350
.899	8.680	80310	.43910	1.16550	-.08600	.00380	.00000	.53890	-.26120	-.25910	-.27650
.899	10.620	1.02610	.72870	1.17880	-.20710	-.09510	.00490	.52940	-.28100	-.28110	-.29600
.899	.540	.06570	-.02470	1.06280	-.07330	.03820	-.01400	.51400	-.21110	-.22620	-.23130
	GRADIENT	.09885	.00788	.00123	-.00429	.01349	.00182	-.00011	.00246	.00135	-.00148

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 804, SA-BF

PAGE 3

(RIM001) ( 10 JUL 75 )

MSFC TWT804 (SABF) SRB CLEAN W/RINGS

## REFERENCE DATA

SREF = .5030 SQ. IN. XPRP = 5.7210 IN. XS  
LREF = .8000 IN. YPRP = .0000 IN. YS  
BREF = .8000 IN. ZPRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 308/ 0 RN/L = 8.69 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.200	-9.580	-1.85660	-1.42120	1.68610	-0.0280	-0.06510	.01720	.44800	-.30840	-.32830	-.31350
1.200	-7.610	-1.65020	-1.89370	1.64290	-0.02740	-0.09370	.02580	.47120	-.29520	-.31470	-.29820
1.200	-5.570	-1.50280	-1.53470	1.57370	-0.03520	-0.07840	.01160	.49660	-.27750	-.29860	-.27880
1.200	-3.510	-1.35840	-1.03120	1.46510	-0.03810	-0.01620	.02020	.57630	-.24060	-.27820	-.25190
1.200	-1.500	-1.13940	-0.1380	1.41640	-0.05230	.02380	.01870	.59150	-.22120	-.24160	-.23230
1.200	.540	-.05020	-.19030	1.41990	-0.06370	.04520	.00050	.76260	-.20650	-.23530	-.23480
1.200	2.570	.33310	-.23700	1.49240	-0.07150	.07490	.00980	.64140	-.23090	-.25880	-.27100
1.200	4.610	.45230	.08760	1.57340	-0.05730	.03170	.01900	.58750	-.26120	-.28570	-.29920
1.200	6.690	.64570	.52940	1.63760	-0.05470	.02380	.02120	.51650	-.27170	-.29530	-.30800
1.200	8.750	.84150	1.01830	1.68590	-0.07170	-.03550	-.00220	.48470	-.28510	-.31520	-.32490
1.200	10.700	1.03560	1.51830	1.69200	-0.08720	-.03570	-.00070	.46380	-.28710	-.32290	-.32670
1.200	.540	.10240	-.14320	1.41820	-.05980	.04720	-.00220	.69740	-.21240	-.24020	-.23940
GRADIENT		.10308	-.00082	.01247	-.00283	.00722	-.00055	.00198	-.00173	-.00160	-.00657

RUN NO. 224/ 0 RN/L = 7.03 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.958	-9.670	-1.87800	-2.31390	1.23020	-0.02650	.05590	.00110	.36840	-.16070	-.21080	-.22410
1.958	-7.680	-1.62030	-1.67830	1.21370	-0.01540	.04860	.00430	.36270	-.15270	-.21060	-.21780
1.958	-5.610	-1.45260	-1.09380	1.19610	-0.02610	.02480	-.01530	.36620	-.14350	-.21230	-.21350
1.958	-3.550	-1.30980	-.56390	1.17040	-0.03080	.03060	.01260	.43490	-.13550	-.20610	-.21100
1.958	-1.500	-1.15020	-.19230	1.15120	-0.01200	.04620	.00860	.47890	-.12780	-.20730	-.21150
1.958	.550	.06740	.10560	1.16190	-0.02890	.02260	-.00340	.45570	-.13080	-.20540	-.21170
1.958	2.630	.24030	.40680	1.15070	-0.03000	.04040	-.00910	.44520	-.13250	-.21050	-.21050
1.958	4.670	.39340	.90490	1.18260	-0.04010	.02330	-.00670	.39570	-.13010	-.20190	-.20570
1.958	6.790	.57520	1.56620	1.21850	-0.04600	.02220	-.01800	.36120	-.13830	-.20260	-.19990
1.958	8.870	.80170	2.16000	1.23370	-0.06170	-.00650	-.01580	.36360	-.14930	-.21120	-.20180
1.958	10.840	1.12850	2.85730	1.27400	-0.05750	-.01460	-.01580	.37690	-.14730	-.21790	-.20820
1.958	.560	.09880	.16040	1.11880	-0.00250	.03130	-.00720	.45100	-.12790	-.20460	-.20580
GRADIENT		.08736	.17191	.00116	-.00231	-.00099	-.00274	-.00545	.00030	.00025	.00056

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB CLEAN W/RINOS

(R1H001) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .6000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000  
NOZZLE = .000  
PHI = .000

## PARAMETRIC DATA

RUN NO. 172/ 0 RN/L = 5.04 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	C/M	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	-9.610	-1.20340	-2.69910	.93640	.03180	-.04070	-.00010	.40040	-.10240	-.13730	-.14180
2.740	-7.630	-80180	-2.04820	.92160	.02110	-.01140	.02600	.37500	-.09080	-.13130	-.13630
2.740	-5.580	-.52260	-1.45420	.89110	.00850	-.03300	-.01490	.35640	-.08360	-.12650	-.13040
2.740	-3.530	-.33040	-.82750	.88550	.00390	.00210	.00440	.37900	-.08280	-.13210	-.13300
2.740	-1.480	-.113910	-.30540	.89260	-.00110	-.03690	.01750	.40300	-.08330	-.13210	-.13500
2.740	.540	.05230	-.02090	.88490	-.00120	-.00520	-.01390	.61610	-.08180	-.13540	-.13510
2.740	2.600	.20930	.55670	.89450	.00220	.00480	.00190	.36650	-.08240	-.13510	-.13390
2.740	4.630	.42060	1.18000	.88680	-.01300	-.06340	.00220	.73420	-.08050	-.13270	-.13160
2.740	6.730	.66420	1.78720	.89320	-.01760	-.07000	.00110	.36390	-.06310	-.13240	-.12970
2.740	8.770	1.01100	2.41440	.90990	-.01240	-.05900	-.00040	.38850	-.09010	-.13530	-.12960
2.740	10.720	1.39390	3.00870	.91510	-.01530	-.08570	.00910	.40730	-.09770	-.13470	-.13020
2.740	.550	.05010	1.2880	.87930	.03040	-.02330	-.02410	.37370	-.08360	-.13530	-.13510
GRADIENT		.09059	2.3911	.00022	-.00149	-.00438	-.00937	-.03429	.00627	-.00621	.00019

RUN NO. 171/ 0 RN/L = 6.88 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	C/M	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	-9.630	-1.24470	-2.31620	.76970	.02770	.04840	.02760	.43160	-.07160	-.06940	-.09040
3.480	-7.650	-.90180	-1.93290	.75250	-.01400	-.03630	.02070	.40850	-.06730	-.08830	-.08940
3.480	-5.590	-.57910	-1.37030	.73580	-.01580	-.00110	.01870	.39040	-.05850	-.08460	-.08540
3.480	-3.540	-.36740	-.76210	.73730	-.03540	-.03910	.02900	.40970	-.06010	-.08550	-.08750
3.480	-1.490	-.19060	-.31720	.72770	-.02430	-.01290	.02140	.44760	-.06150	-.08480	-.08570
3.480	.550	.06810	.09380	.72160	-.03370	-.00270	.01800	.47100	-.06030	-.08640	-.08590
3.480	2.610	.24340	.51740	.72940	-.00510	-.00160	.01800	.40990	-.05730	-.08540	-.08510
3.480	4.640	.43980	1.11350	.73320	-.03390	-.00780	.02050	.37680	-.05750	-.08450	-.08460
3.480	6.740	.73090	1.67090	.73170	-.04590	-.04930	.00720	.39690	-.05990	-.08710	-.08350
3.480	8.790	1.08660	2.16340	.77380	-.04750	-.04440	.02340	.42090	-.06650	-.08830	-.08180
3.480	10.730	1.47350	2.52450	.75610	-.04790	-.08600	.01460	.44360	-.06830	-.08840	-.08560
3.480	.550	.08390	.14710	.72610	-.02650	-.00740	.02680	.44040	-.05600	-.08640	-.08590
GRADIENT		.10011	2.2607	-.00032	.00109	-.00403	-.00100	-.00506	.00542	-.00011	.00012

(R1H001) ( 10 JUL 75 )

MSFC TWT804 (SABF) SRB CLEAN W/RINDS

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .0000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA =  
NOZZLE =

.000 PHI =  
.000

RUN NO. 173/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
4.000	-9.540	-1.22330	-1.79950	.68920	.03700	.12030	.02900	.46340	-.05390	-.06560	-.06450
4.000	-7.600	-.88160	-1.51700	.66370	.01800	.10370	.01770	.44300	-.05280	-.04520	-.06470
4.000	-5.550	-.58230	-1.09780	.65260	.02720	.13290	.02510	.42960	-.04890	-.06380	-.06410
4.000	-3.520	-.38100	-.63690	.65090	.01370	.10790	.01740	.44700	-.04680	-.06370	-.06340
4.000	-1.480	-.19660	-.11960	.62220	-.03930	.10070	-.00220	.53380	-.04490	-.06400	-.06340
4.000	.550	.08000	.08700	.63510	.00120	.11870	.01300	.49470	-.04240	-.06400	-.06330
4.000	2.610	.32080	.53180	.63150	.00130	.11350	.03180	.44820	-.04470	-.06380	-.06280
4.000	4.620	.50120	.97690	.63340	-.00600	.04760	.00590	.42440	-.04550	-.06380	-.06190
4.000	6.700	.77960	1.35600	.63280	.01210	.03580	.00170	.44150	-.04820	-.06440	-.06210
4.000	8.730	1.12020	1.85930	.65100	.00980	.01830	.01310	.44800	-.05190	-.06620	-.06240
4.000	10.660	1.48010	2.10840	.66130	.01130	.01730	.01990	.46720	-.05350	-.06620	-.06330
4.000	.550	1.0030	.15320	.63390	.00030	.10520	.01820	.45870	-.04420	-.06540	-.06400
GRADIENT		11203	.19042	-.03126	-.00007	-.00528	.00055	-.00642	.00014	.00000	.00018

RUN NO. 174/ 0 RN/L = 5.48 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	-9.480	-1.21620	-1.53930	.62260	.01630	.01850	.00220	.48010	-.04180	-.04800	-.04500
4.450	-7.550	-.95600	-1.36010	.59930	.00340	.00860	-.03410	.46730	-.04160	-.04900	-.04600
4.450	-5.530	-.66630	-1.01350	.57380	.00280	.00630	-.03450	.45930	-.04140	-.04910	-.04660
4.450	-3.500	-.42900	-.56770	.56770	-.04510	.10760	.01840	.47540	-.04060	-.04930	-.04620
4.450	-1.460	-.11660	.01170	.52100	.00500	.10810	-.10230	.59160	-.04180	-.05030	-.04720
4.450	.570	.08610	.18240	.55020	.00810	.15470	-.04230	.41060	-.03930	-.05070	-.04820
4.450	2.560	.26110	.32410	.55540	-.00340	.06060	-.00320	.48210	-.04200	-.05090	-.04760
4.450	4.590	.52090	.89490	.57260	.00660	-.07290	-.00700	.44320	-.04020	-.04990	-.04660
4.450	6.650	.72460	1.20010	.57280	-.04960	-.04110	-.17500	.44830	-.04120	-.05090	-.04600
4.450	8.670	1.04750	1.57860	.58660	-.06710	.13460	-.03920	.46060	-.04300	-.05170	-.04560
4.450	10.590	1.36590	1.80640	.60140	-.08120	.18290	-.04090	.47560	-.04340	-.05190	-.04640
4.450	.560	.02840	.10070	.53920	.00710	-.20790	-.04700	.29480	-.04180	-.05190	-.04760
GRADIENT		11278	.16039	.00217	.00521	.00575	.00235	-.00861	.00003	-.00009	-.00006

WSEC TUE04 (EABE) SBB CLEAN W/RINGS (P1HC02) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. XS
LREF	=	.8000	IN	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO. 211 / 0 RN/L = 5.27 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

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RUN NO. 212/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5 00/ 5 00

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MACH	ALPHA	CNM	CLIM	CA	CYM	CYMH	CRL	XCP/L	CBP1	CBP2	CBP3
599	10.780	89240	92130	99880	-05110	02630	-01890	49920	-28890	-30680	-30540
599	12.710	1:07400	1:26000	99380	-05380	00520	02040	48770	-30560	-33140	-31430
599	14.730	1:27400	1:65400	99380	-02830	01680	-00440	47790	-33670	-46150	-34020
599	16.740	1:47490	2:06970	99110	02440	01680	-00930	46890	-35030	-38120	-34470
599	18.770	1:70320	2:57780	99400	02870	-24990	-00910	45990	-37400	-40490	-36120
599	20.820	1:91110	3:02430	99830	06470	-65700	-03200	45930	-39440	-42440	-37460
599	22.860	2:26770	3:61570	99290	21940	-46840	-02080	45330	-39300	-42640	-37580
599	24.890	2:53200	4:23900	91040	18120	-34880	-00480	44480	-37170	-42470	-37460
599	26.960	2:87800	4:96570	86940	13020	-23860	-00450	44260	-34440	-42400	-37340
599	29.000	3:15480	5:70870	81760	95180	-13750	-00090	43560	-32100	-42460	-37300
599	30.920	3:51670	6:26600	79180	-36440	-19520	-02680	43760	-44420	-44100	-44360
599	20.820	1:93480	3:07790	94590	04260	-17460	00180	45300	-39470	-44310	-44550
599	24.890	2:53200	4:23900	90000	00000	-00000	00000	45300	-39470	-44310	-44550

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TABULATED SOURCE DATA, MSFC TWT 604, SA-08

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(R1H002) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 S2 IN. XMRP = 5.7210 IN XS  
LREF = .8000 IN YMRP = .0000 IN. YS  
PREF = .8000 IN ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 213/ 0 RN/L = 6.28 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
901	10 650	1 00190	.70840	1.17140	-.21180	-.07120	-.01620	54570	-.26860	-.27900	-.26520
901	12 800	1 24850	1.13000	1.16530	-.25120	-.06800	-.01530	50950	-.29320	-.30000	-.29990
901	14 840	1.49030	1.51270	1.15310	-.32980	-.12250	-.01870	50050	-.31470	-.32570	-.31100
901	16 890	1.77770	2.06520	1.13900	-.29590	-.19980	-.02180	48860	-.33230	-.34430	-.32180
901	18 950	2 05070	2 61570	1.12900	-.11610	-.20440	-.03700	47930	-.34590	-.36270	-.33330
901	21 040	2 36970	3.31530	1.11010	-.20150	-.21210	-.03520	47020	-.37240	-.39390	-.35820
901	23 120	2 74670	4.12840	1.08960	-.05830	-.14720	-.02880	46080	-.39140	-.41400	-.37520
901	25 220	3.14830	5.09790	1.05580	-.01980	-.09310	-.03690	45130	-.41300	-.42780	-.39670
901	27 370	3 83760	6.18630	1.03730	-.59470	2.41870	-.02460	44190	-.43520	-.44090	-.41580
901	29 530	4 32480	7 60020	1.00640	43580	2 39350	-.03360	44000	-.44470	-.46100	-.44000
901	31 510	4 86110	8.86520	.94860	44790	3.20230	-.03790	43460	-.43110	-.49930	-.45160
901	21 650	2 41220	3 49470	1 11250	-.20820	-.27180	-.02950	46820	-.36920	-.38580	-.34860
GRADIENT		00000	00000	.00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 214/ 0 RN/L = 5.68 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 198	10 940	1.02180	1.56820	1.68420	-.05160	.00060	-.01120	45820	-.29050	-.32820	-.32990
1 198	12 910	1 24150	2 12140	1.68460	-.06210	-.01770	-.01240	44400	-.30340	-.33680	-.33510
1 198	14 990	1 50640	2 84340	1.67860	-.06170	-.02010	-.02610	42940	-.32690	-.35690	-.35140
1 198	17 090	1 87240	3.75710	1.66940	-.06290	-.03350	-.00930	41970	-.34150	-.36980	-.36350
1 198	19 210	2 31130	4.84910	1.65320	-.07150	-.05370	-.00760	41220	-.35640	-.38650	-.38010
1 198	21 390	2 83530	6 17660	1.63150	-.08190	-.08890	-.02430	40560	-.37820	-.40700	-.39890
1 198	23 550	3 42340	7.45530	1.61040	-.10230	-.09640	-.02800	40570	-.39340	-.42010	-.41370
1 198	25 740	4 14240	8.77570	1.57900	-.04380	-.08520	-.03780	41050	-.41620	-.43690	-.43900
1 198	27 960	4 95330	10 16040	1.54170	-.02620	-.05710	-.01180	41600	-.42610	-.45400	-.45530
1 198	30 180	5 82900	11 54480	1.50080	-.00670	-.00400	-.03000	42180	-.42310	-.47720	-.47130
1 198	32.270	6.75480	12 81990	1.47370	-.01630	.01150	-.02400	42850	-.44580	-.51060	-.49710
1 198	21 410	2 89920	6 26510	1 63710	-.00020	-.11230	-.03150	40590	-.38470	-.41300	-.40490
GRADIENT		00000	00000	.00000	00000	.00000	00000	00000	00000	00000	00000



DATE 10 JUL 75

## REFERENCE DATA

XREF =	.5030	EQ. IN.	XAPP =	5.7210	IN. X8
LREF =	.8000	IN.	YAPP =	.0000	IN. Y5
BREF =	.8000	IN.	ZAPP =	.0000	IN. Z5
SCALE =	.0095				

ROW NO	223/ 0	RN/1	7.03	GRADIENT INTERVAL	-5.00/ 5.00
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MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.949	11.070	1.11740	2.81560	1.23240	-.02140	.06880	-.01120	.37780	-.14600	-.22390	-.21370
1.949	13.100	1.59040	3.64540	1.22300	-.01030	.08100	-.01320	.39640	-.16030	-.22600	-.21270
1.949	15.260	2.08920	4.70680	1.22660	-.01320	.01240	-.00320	.39960	-.18100	-.22690	-.21570
1.949	17.420	2.66020	5.64000	1.24370	-.01810	-.01530	-.02150	.41040	-.19610	-.23630	-.22280
1.949	19.600	3.34900	6.43900	1.24780	-.00380	-.03490	-.02180	.42650	-.21270	-.24120	-.22810
1.949	21.770	4.09030	7.12470	1.26100	-.01340	-.03400	-.00520	.44130	-.22420	-.24280	-.23390
1.949	23.940	4.84520	7.53680	1.25190	-.01770	-.01740	-.01500	.45650	-.23540	-.24360	-.24380
1.949	26.070	5.62350	7.87110	1.24750	-.02610	.06630	-.01350	.46920	-.24670	-.24590	-.24510
1.949	28.260	6.41500	8.09070	1.24190	-.05410	.09980	-.01320	.48050	-.25000	-.24630	-.24960
1.949	30.390	7.22040	8.33740	1.24230	-.08230	.08950	-.00800	.48920	-.24700	-.24960	-.24320
1.949	32.450	8.03250	8.60070	1.24070	-.08170	-.04660	-.01620	.49400	-.25570	-.25160	-.24560
1.949	34.530	8.81390	8.86960	1.19590	-.01130	.00300	-.02130	.49060	-.21510	-.23530	-.22460
1.949	36.600	9.59000	9.12000	1.19000	-.00000	.00000	.00000	.00000	.00000	.00000	.00000

Run NO.	177/ 0	RM/L	= 6 89	GRADIENT INTERVAL	= -5.00/ 5 00
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MACH	ALPHA	CNM	CLNM	CA	CYM	CYMM	CBL	ALP/L	CBP1	CBP2	CBP3
3 480	10 960	1 50110	2 54920	.76050	.00030	-.05640	-.00590	.44480	-.07340	-	-.08740
3 480	12 930	1 87170	2 79680	.77110	-.00640	-.08370	-.00140	.46150	-.07670	-.08990	-.08620
3 480	15 000	2 42070	3 15120	.80070	-.01030	-.03090	.00020	.46150	-.07790	-.06840	-.03550
3 480	17 070	2 90600	3 37360	.82340	-.03650	-.04490	-.01650	.46870	-.07850	-.08720	-.08190
3 480	19 120	3 47020	3 64180	.85650	-.04150	-.01070	-.01120	.49780	-.07870	-.08590	-.08230
3 480	21 210	4 01950	3 83880	.88950	-.06090	-.02830	-.01850	.50550	-.07860	-.08450	-.07960
3 480	23 290	4 63150	4 12810	.92870	-.05650	-.02770	-.01720	.51070	-.07890	-.08200	-.07750
3 480	25 360	5 20440	4 38440	.95490	-.07630	-.05580	-.02530	.51460	-.08000	-.08050	-.07620
3 480	27 490	5 87480	4 74110	1 00190	-.08810	-.05870	-.02180	.51750	-.08130	-.07400	-.07610
3 480	29 560	6 51570	5 07540	1 04270	-.04360	-.02560	-.01340	.51480	-.08250	-.07750	-.07770
3 480	31 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	33 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	35 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	37 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	39 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	41 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	43 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	45 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	47 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	49 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	51 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	53 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	55 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	57 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	59 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	61 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	63 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	65 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480	67 620	7 13360	5 50650	1 06670	-.10610	-.10930	-.02010	.50040	-.08470	-.07930	-.07750
3 480											

REFERENCE DATA  
SREF = .5030 SQ. IN. YMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055  
PARAMETRIC DATA  
BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 175/ 0 RN/L = 6.70 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1
4.000	10.910	1.50060	2.15020	.69100	.01100	.01660	.01990	.46650	-.05890
4.000	12.890	1.88130	2.31820	.71600	-.00660	-.02330	.01350	.48280	-.06740
4.000	14.900	2.34460	2.55300	.74470	-.04280	-.02980	.00680	.49450	-.06680
4.000	16.950	2.84410	2.72050	.79090	-.04780	-.01230	.02390	.50530	-.06630
4.000	19.000	3.38280	2.89660	.83830	-.04250	.00220	.01330	.51350	-.06560
4.000	21.050	3.90190	2.98270	.86820	-.04650	-.00140	.01690	.52100	-.06100
4.000	23.110	4.52250	3.27530	.93090	-.05170	.01410	.01980	.52430	-.06130
4.000	25.170	5.08300	3.59220	.94850	-.06860	-.02510	.01220	.52570	-.06100
4.000	27.280	5.70380	3.93400	1.00730	-.08480	-.04110	.01590	.52710	-.05980
4.000	29.330	6.36380	4.38160	1.04080	-.09140	-.03730	.02600	.52720	-.05750
4.000	31.280	6.94580	4.79060	1.07150	-.11000	-.09330	.00080	.52710	-.05500
4.000	21.070	3.92230	3.04880	.87360	-.04720	-.00280	.00400	.52000	-.05130
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 175/ 0 RN/L = 5.49 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1
4.450	10.830	1.41960	1.77820	.62070	-.00480	.01630	.03190	.48120	-.04540
4.450	12.750	1.77140	1.92640	.66760	-.06050	-.04870	.05460	.49470	-.05070
4.450	14.790	2.23420	2.13230	.69900	-.07160	-.07580	.01740	.50550	-.04700
4.450	16.820	2.72590	2.32660	.75400	-.06740	-.05840	.04820	.51370	-.04740
4.450	18.850	3.21620	2.37780	.80330	-.06100	-.03660	.03240	.52310	-.05090
4.450	20.910	3.76640	2.55030	.84210	-.07130	-.08250	.03170	.52810	-.04720
4.450	22.950	4.28740	2.80300	.87820	-.08110	-.05730	.02760	.53000	-.04780
4.450	24.970	4.86370	3.10300	.95140	-.06250	-.02730	.01960	.53130	-.04840
4.450	27.060	5.47340	3.53520	.98710	-.08810	-.01650	.03530	.53070	-.04820
4.450	29.080	6.02250	3.95300	1.02050	-.08490	.03560	.04060	.52980	-.04820
4.450	31.030	6.63090	4.31710	1.07300	-.09810	-.06590	.02540	.53030	-.04890
4.450	20.910	3.76640	2.55030	.84210	-.07130	-.08250	.03170	.52810	-.04720
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

MSFC THT604 (SABF) SPS CLEAN W/ RINGS

(R14003) ( 10 JUL 75 )

## REFERENCE DATA

REF	5030	IN.	XS
REF	8000	IN.	YS
REF	8000	IN.	ZS
SCALE	0095		

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO. 221/ 1 RN/L = 5.29 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	220/ 0	PM/L	= 4 30	GRADIENT INTERVAL	= -5 00/ 5 00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

PAGE 11

(R114003) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINDS

REFERENCE DATA

SREF = .5030 SQ IN. XPRP = 5 7210 IN. XS  
LREF = .8000 IN. YPRP = .0000 IN. YS  
BREF = .8000 IN. ZPRP = .0000 IN. ZS  
SCALE = .0055

PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 218/ 1 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CAN	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.998	31.240	3.49580	5.80980	.88980	.67770	.24130	.01180	.44780	.00000	.00000	.00000
.998	33.190	3.97860	8.41730	.83980	.73080	1.10480	.03230	.45170	.00000	.00000	.00000
.998	35.880	4.40030	7.04460	.77370	.68400	1.83410	.00880	.45880	.00000	.00000	.00000
.998	37.290	4.70310	7.48480	.69350	.50820	1.71500	-.00830	.45350	.00000	.00000	.00000
.998	39.320	4.81920	8.01850	.62370	.32150	.93040	-.01370	.44770	.00000	.00000	.00000
.998	41.340	5.03250	8.26410	.52050	.23590	.50120	.00130	.44940	.00000	.00000	.00000
.998	43.350	5.15550	8.28210	.43310	.28300	.31970	.01890	.45240	.00000	.00000	.00000
.998	45.410	5.60450	9.50730	.33990	-.33670	-2.14910	.01040	.44500	.00000	.00000	.00000
.998	47.520	6.92610	10.14880	.34980	.78860	3.32970	-.00900	.46380	.00000	.00000	.00000
.998	49.630	8.26740	11.12020	.22520	.71830	-.22820	.02030	.47360	.00000	.00000	.00000
.998	51.640	9.44120	12.06470	.20770	.38140	-.80370	-.00270	.47910	.00000	.00000	.00000
.998	41.330	4.97420	8.24510	.52870	.22150	-.08920	.02400	.44810	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 218/ 0 RN/L = 5.93 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CAN	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.799	31.590	4.12480	7.32000	.85550	-.64400	-.97990	-.01170	.43860	-.35530	-.49260	-.43250
.799	33.570	4.47530	8.31420	.79180	-.53630	-1.17660	.00560	.43180	-.45440	-.53620	-.45020
.799	35.670	4.82570	9.67660	.70930	-.04100	-.25120	-.01300	.41980	-.51500	-.54530	-.47330
.799	37.740	5.24430	10.86710	.62390	-.04660	-.39500	-.02060	.41430	-.49140	-.55880	-.50690
.799	39.830	5.68010	12.04310	.52620	.13420	-.94130	-.00900	.41040	-.49750	-.56590	-.52810
.799	41.950	6.17630	13.16230	.46380	.27170	-1.52840	-.01430	.40950	-.51470	-.58420	-.55150
.799	44.080	6.90690	14.41500	.40210	.28250	-1.59380	-.01730	.413	-.54510	-.61050	-.58760
.799	46.220	7.85170	15.60670	.31440	.28860	-1.53150	-.01600	.4214	-.56590	-.64170	-.59540
.799	48.420	9.02170	16.86990	.22740	.24400	-2.63560	-.01830	.43080	-.61440	-.67010	-.61500
.799	50.580	9.91850	18.65110	.13310	.19050	-1.70870	-.02090	.43000	-.63770	-.73030	-.58300
.799	52.650	11.11440	19.67420	.06920	-.29140	-.53450	-.00810	.43900	-.74170	-.86490	-.53750
.799	42.000	6.34650	13.52710	.46690	.26680	-1.51790	-.03690	.41000	-.51520	-.48240	-.55560
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

DATE 10 JUL 78

(R14003) ( 10 JUL 75 )

MSFC THT604 (SABF) SRB CLEAN W/RINOS

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

## REFERENCE DATA

SREF	=	5030	SO	N.	XREP	=	5.7210	N.	X5
LREF	=	6000	IN	Y5	YREP	=	.0000	N.	Y5
BREF	=	8000	N.	ZREP	=	0000	N.	Z5	
SCALE	=	.0055							

RUN NO. 217/1      RN/L = 6.28      GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 216/ 0 RIN/L = 6.48 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLMM	CA	CVM	CYNN	CBL	XCP/L	(GPI	CBP-2	CBP-3
99%	32 370	5 78340	14 04670	1 23260	- 09070	- 00510	- 00430	38920	- 50800	- 51090	- 50610
99%	34 470	6 56230	15 96670	1 17870	- 10180	- 16350	- 00750	38490	- 50720	- 53420	- 51720
99%	36 670	7 45410	17 50400	1 11390	- 18480	- 80260	- 01940	39180	- 50470	- 53000	- 53000
99%	38 820	8 22600	19 20570	1 04320	- 06560	- 67650	- 03330	34030	- 50360	- 52610	- 54560
99%	41 040	9 32540	20 53430	94980	- 01160	- 72510	- 01640	40370	- 51490	- 54090	- 5370
99%	43 220	10 35130	21 49900	80460	- 05060	- 83670	- 02600	41330	- 54040	- 54290	- 54310
99%	45 480	11 64060	22 66740	74410	- 06050	- 48400	- 02190	42450	- 50560	- 54660	- 53990
99%	47 630	12 46770	23 71970	65090	- 03010	- 28140	- 02470	42760	- 51370	- 52470	- 55180
99%	49 840	13 60840	24 48180	58420	- 04900	- 19120	- 01330	43660	- 51360	- 54830	- 55420
99%	51 960	14 36880	25 17130	45530	- 03990	- 48390	- 02150	44040	- 42250	- 61790	- 55470
99%	53 980	15 19760	25 77610	33240	- 00370	- 51530	- 01500	44500	- 50370	- 62630	- 54330
99%	43 240	10 39170	21 63140	79560	- 04950	- 66470	- 02240	41360	- 52940	- 51460	- 55390
GRACIENT	00000	00000	00000	00000	- 00000	- 00000	- 00000	00000	- 00000	- 00000	- 00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 804, SA-8F

PAGE 13

MSFC THT804 (SABF) SRB CLEAN W/RINDS

(RIH003) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. X5  
LREF = .8000 IN. YMRP = .0000 IN. Y5  
BREF = .8000 IN. ZMRP = .0000 IN. Z5  
SCALE = .0095

PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 215/ 0 RN/L = 6.68 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYH	CBL	XCP/L	CBP1	CBP2	CBP3
1.192	32.240	6.80150	13.13880	1.49300	.03340	-.22430	-.01110	.42580	-.44730	-.50660	-.49380
1.192	34.740	7.73570	14.32380	1.44790	.04300	-.45520	-.01090	.43230	-.48040	-.52700	-.50540
1.192	5.950	8.72730	15.36010	1.38890	.02650	-.45810	-.01400	.43980	-.49360	-.54690	-.51770
1.192	39.110	9.73510	16.19220	1.31340	-.00740	-.23860	-.00600	.44770	-.51100	-.56300	-.53670
1.192	41.300	10.76530	16.82700	1.24100	-.03880	-.05950	-.02090	.45590	-.50600	-.56550	-.53360
1.192	43.500	11.82610	17.25670	1.16470	-.06350	.02750	-.01830	.46430	-.51920	-.58830	-.53320
1.192	45.660	12.85480	17.69690	1.07870	-.12640	.26680	-.01400	.47110	-.53270	-.60240	-.53780
1.192	47.820	13.85580	17.97480	1.01280	.19230	-.90680	-.01150	.47720	-.52560	-.62820	-.54770
1.192	49.990	14.83280	18.58840	.89160	.25060	-1.19050	-.01560	.48020	-.55800	-.64440	-.53630
1.192	52.130	15.92440	18.74770	.73540	.00370	-.45810	-.00780	.48500	-.49520	-.65750	-.49560
1.192	54.140	16.03120	19.68380	.58980	-.04510	-.54580	-.00910	.48320	-.50110	-.64700	-.46720
1.192	43.510	11.91830	17.33540	1.18510	-.05090	.05180	-.01190	.46470	-.51710	-.58030	-.52690
GRADIENT		00000	00000	.00000	.00000	.00000	.00000	00000	00000	00000	00000

RUN NO. 222/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYH	CBL	XCP/L	CBP1	CBP2	CBP3
1.958	32.690	7.96360	8.71430	1.24990	-.00360	-.05490	.00690	.49820	-.24760	-.25930	-.24040
1.958	34.720	8.70750	8.53210	1.25270	-.01780	-.06270	.01170	.50340	-.25240	-.26030	-.24030
1.958	36.910	9.54220	8.96670	1.24050	-.02740	-.04040	-.00260	.50570	-.25210	-.25970	-.23950
1.958	39.050	10.27150	9.60670	1.24660	-.04230	-.07040	.00590	.50710	-.25620	-.26190	-.24080
1.958	41.200	11.12170	10.15300	1.24790	-.06540	-.11270	.00170	.50930	-.25750	-.26320	-.24050
1.958	43.370	11.83180	10.51220	1.23830	-.07580	-.09810	.00780	.51090	-.26340	-.23330	-.24650
1.958	47.420	12.52900	10.90560	1.22130	-.08300	-.13970	.00090	.51240	-.26810	-.20340	-.25160
1.958	49.860	13.34190	11.57830	1.21090	-.09760	-.18940	.01190	.51260	-.27370	-.22150	-.25490
1.958	51.990	14.03650	12.02220	1.18900	-.11600	-.21430	.01520	.51350	-.27460	-.19010	-.25070
1.958	54.020	14.59460	12.52530	1.14280	-.12630	-.26450	.00340	.51340	-.27900	-.15330	-.25490
1.958	43.370	11.72660	10.36880	1.10950	-.14270	-.32170	.00990	.51300	-.28430	-.15330	-.25490
GRADIENT		00000	00000	.00000	-.06620	-.11540	.00050	.51120	-.28640	-.21720	-.24000
					.00000	.00000	.00000	00000	00000	00000	00000

DATE: 10 JUL 63

TABLED SOURCE DATA, MSFC INT 604, SA-87

30.9  
17

MSFC T47604 (SABR) SR09 CLEAN W/21N05

(R14003) ( 10 JUL 75 )

REFERENCE DATA

5.7210 IN. X3	5030 SQ IN.	XXXX
XXXX	8000 IN.	YX6P
.0000 IN. Y5	8000 IN.	Z40P
.0000 IN. Z5	0055	

WETA	-	300	PHI	-	000
NOZZE	-	000			

### PARANETRIC DATA

RUN NO. 179/ 0    RM/L = 4 87    GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

0.000000 179.0 8.36 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TNT 80%, 2A-8F

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MSFC TH1604 (SABF) SSB CLEAN W/RINGS

(R1H003) (10 JUL 75)

## REFERENCE DATA

REF = .5032 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 180. 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYN	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.000	31.630	7.02710	4.73490	1.09300	-0.04720	.00550	.00550	5.440	-.03320	-.04670	-.05510
4.000	33.600	7.66100	5.21060	1.14190	-0.06440	.00060	-.00370	.52790	-.03370	-.04160	-.05490
4.000	35.670	8.28140	5.75350	1.18510	-0.08120	-.01450	.04840	.56870	-.05370	-.03580	-.05400
4.000	37.750	8.99990	5.94970	1.24570	-0.07560	-.00070	-.05020	.52940	-.05420	-.03240	-.05300
4.000	39.820	9.69950	6.23580	1.28870	-0.07070	-.02590	-.01800	.53090	-.05680	-.02300	-.05290
4.000	41.930	10.38150	6.60330	1.32160	-0.06440	-.05030	-.00750	.53150	-.06020	-.02680	-.05030
4.000	43.960	11.08260	6.96310	1.34910	-0.11230	-.09120	.03000	.53210	-.05910	-.03370	-.05230
4.000	46.040	11.68160	7.58220	1.3700	-0.10220	-.08690	-.00040	.53040	-.05680	-.03390	-.05080
4.000	48.140	12.30890	8.34410	1.1260	-0.10140	-.01540	-.02660	.52810	-.05650	-.02920	-.03930
4.000	50.230	12.84210	9.03480	1.22910	-0.10550	-.10980	.00480	.52600	-.04440	-.01840	-.03940
4.000	52.160	13.34420	9.71950	1.22740	-0.12760	-.13140	.00640	.52390	-.05230	-.01720	-.04090
4.000	41.890	10.36250	6.61090	1.3120	-.09580	-.00310	.04220	.53130	-.05440	-.02700	-.04830
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 181/ 0 RN/L = 5.12 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYN	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	31.350	6.57200	4.12920	1.09280	-0.05460	-.08440	.04570	.53210	-.04180	-.03550	-.03910
4.450	33.290	7.17650	4.45250	1.15000	-0.05030	-.06640	.04840	.53280	-.04220	-.03170	-.04000
4.450	35.340	7.84230	4.82560	1.18950	-0.06110	-.09580	.03980	.53320	-.04240	-.02560	-.04060
4.450	37.390	8.53570	5.15410	1.23160	-0.05730	-.14850	.02700	.53410	-.04400	-.02050	-.03970
4.450	39.420	9.15890	5.42330	1.28280	-0.05110	-.09360	.03320	.53510	-.04420	-.01350	-.03960
4.450	41.490	9.83850	5.91070	1.32190	-0.07690	-.10070	.03810	.53440	-.04680	-.01650	-.03870
4.450	43.560	10.50380	6.25120	1.34430	-0.07430	-.17310	.05190	.53480	-.04380	-.02520	-.03910
4.450	45.590	11.12000	6.90010	1.32250	-0.08760	-.11540	.06740	.53270	-.04580	-.02620	-.03810
4.450	47.660	11.63320	7.47090	1.24620	-.06940	-.20950	.04200	.53100	-.04500	-.02260	-.03510
4.450	49.710	12.21360	8.20020	1.20700	-0.10590	-.24480	.05080	.52850	-.04440	-.01060	-.03250
4.450	51.660	12.76430	8.86960	1.19490	-0.12150	-.26030	.03300	.52670	-.04300	-.00700	-.03330
4.450	41.500	9.78270	5.83140	1.30150	-.09340	-.20240	.05020	.53470	-.04660	-.01630	-.03630
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRB CLEAN W/RIINGS

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS

LREF = 8000 IN. XMRP = .0000 IN. YS

BREF = 8000 IN. ZMRP = .0000 IN. ZS

SCALE = .0055

PARAMETRIC DATA

BETA = .000

NOZZLE = .000

PHI = .000

RUN NO. 2577 0 RN/L = 5.19 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CMH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1
.368	50 390	6.30520	9.22190	.32210	.27460	.94400	-.06300	.46410	.00000
.368	52 390	6.80910	10.14960	.32010	-.23420	1.36090	-.00960	.46180	.00000
.368	54 320	7.51550	10.54300	.21470	.50580	3.47860	-.03130	.46890	.00000
.368	56 310	8.09960	11.45300	.08940	.64210	1.91890	-.07620	.46790	.00000
.368	58 300	8.60180	11.94120	.03090	.58780	4.10490	-.04580	.47010	.00000
.368	60 330	8.99620	12.80570	-.04310	-.15180	5.86130	-.04610	.46720	.00000
.368	62 340	9.48800	13.47370	-.08160	-.82480	6.18720	-.04870	.46750	.00000
.368	64 350	10.04190	14.51960	-.14180	-.12940	6.73980	-.02730	.46540	.00000
.368	66 360	10.05750	14.06280	-.19350	-.49330	6.85100	-.01250	.46930	.00000
.368	68 360	10.05420	13.75460	-.24600	.03480	2.32470	.00930	.47180	.00000
.368	70 240	10.53650	14.21450	-.31330	-.41920	6.9210	-.02310	.47330	.00000
.368	60 330	8.82970	12.48740	-.06760	.02610	5.49690	-.03750	.47430	.00000
GRADIENT		00000	00000	.00000	.00000	00000	.00000	00000	00000

RUN NO. 2567 1 RN/L = 5.20 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CMH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1
.599	50 480	6.97200	11.44050	.32460	.82250	-1.69460	-.01700	.44950	.00000
.599	52 390	7.86170	12.43850	.23710	1.27770	-1.2040	-.02430	.45430	.00000
.599	54 460	8.61420	14.90000	.09820	1.40960	-1.78950	-.02420	.44230	.00000
.599	56 430	9.41850	15.65980	.02850	1.74010	-.90590	-.01570	.44770	.00000
.599	58 460	10.01630	16.00740	-.04800	1.62790	-.73850	-.01470	.45300	.00000
.599	60 490	10.41180	16.34510	-.11820	1.58560	-.82500	.01020	.45530	.00000
.599	62 490	10.92480	16.52150	-.17730	1.41640	-1.24090	.01330	.45000	.00000
.599	64 470	11.28330	16.50930	-.22630	1.14230	-1.45300	-.02650	.46390	.00000
.599	66 520	11.93970	17.47410	-.24150	.63760	-.69920	-.01330	.46400	.00000
.599	68 500	12.03500	17.43240	-.24290	.20190	-.50830	-.03440	.46520	.00000
.599	70 390	12.03230	16.76490	-.25070	.01770	-.26330	-.03630	.47020	.00000
.599	60 490	10.46480	16.38600	-.14400	1.58190	-.93210	-.02120	.45660	.00000
GRADIENT		00000	00000	.00000	.00000	00000	.00000	.00000	.00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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(RTM004) ( 10 JUL 75 )

MSFC TWT 604 (5A8F) SRB CLEAN W/RINGS

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 5030 SQ. IN XMRP = 5.7210 IN. XS  
 LREF = 8000 IN YMRP = .0000 IN. YS  
 BREF = 8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = 0055

BETA = .000  
 NO'ZLE = .000

RUN NO. 259/ 0 RN/L = 6.39 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
905	50 880	11 15340	19.44880	47980	-35330	-1 12280	-02710	.44120	.00000	.00000	.00000
905	52 810	11 84290	20.46920	38550	-21220	-186990	-03110	.44240	.00000	.00000	.00000
905	54 870	12 50530	21.60860	31220	-14610	-69330	-04490	.44350	.00000	.00000	.00000
905	56 900	13 36590	23.07920	27650	09820	-1 16800	03130	.44250	.00000	.00000	.00000
905	58 880	13 91730	23.38440	23110	04260	-82650	-02300	.44630	.00000	.00000	.00000
905	60 910	14.38500	23.68990	15920	-18030	-50290	-05390	.44900	.00000	.00000	.00000
905	62 920	14.72230	23.85950	14280	-23600	-21210	-05550	.45120	.00000	.00000	.00000
905	64 870	14.72740	22.41530	11580	-24430	-39600	-06040	.45920	.00000	.00000	.00000
905	66 840	14 89470	20 78950	11790	-22970	-45110	-05160	.46950	.00000	.00000	.00000
905	68 790	14 96580	19 21520	12600	-22430	-43330	-05960	.47850	.00000	.00000	.00000
905	70 620	15 09250	18 14990	14530	-20310	-47810	-04270	.48530	.00000	.00000	.00000
905	60 910	14 36150	23.68400	15050	-17300	-49790	-03030	.44890	.00000	.00000	.00000
GRADIENT		00000	.00000	.00000	00000	.00000	00000	.00000	.00000	.00000	.00000

RUN NO 260/ 0 RN/L = 6.78 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
196	50 970	13.76370	18 29570	1 04070	-20760	-31100	-00550	.47490	.00000	.00000	.00000
196	52 870	14 38760	18 38030	93190	-19990	-30610	-00690	.47920	.00000	.00000	.00000
196	54 880	14 97400	18 61830	81320	-19630	-36410	-01030	.48190	.00000	.00000	.00000
196	56 870	15 62200	18 58630	77340	-19560	-52490	-02350	.48630	.00000	.00000	.00000
196	58 870	16 25150	18.59020	73510	-23520	-47200	-02180	.49000	.00000	.00000	.00000
195	60 850	16.71630	18 26900	69840	-22100	-06660	-03000	.49420	.00000	.00000	.00000
196	62 880	17 01930	18 42690	62550	-20650	-31610	-02610	.49500	.00000	.00000	.00000
196	64 860	17 34450	18 55410	55510	-23120	-20350	-01840	.49610	.00000	.00000	.00000
196	66 860	17 68840	18 11340	46020	-26120	-18900	-03210	.49380	.00000	.00000	.00000
196	68 830	17 95010	17 30180	44710	-27020	-16540	-01570	.50470	.00000	.00000	.00000
196	70 690	18 14920	16 56360	54760	-25030	-20100	-01230	.50850	.00000	.00000	.00000
196	60 850	16 65380	19 5550	69840	-27200	-23310	-02450	.49450	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	00000	.00000	00000	.00000	.00000	.00000	.00000

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TABULATED SOURCE DATA. MSFC THT 604. SA-BF

DATE 10 JUL 75

(RTH005) ( 10 JUL 75 )

MSFC THT604 (SABF) SRB CLEAN W/RINGS

PARAMETRIC DATA

REFERENCE DATA

SKF = .5030 SQ. IN. XMRP = 5.7210 IN. X5  
 LREF = .8000 IN. YMRP = .0000 IN. Y5  
 BREF = .8000 IN. ZMRP = .0000 IN. Z5  
 SCALE = .0055

BETA = .000  
 NOZZLE = .000

RUN NO. 258/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYN	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.395	50.350	7.24860	10.69310	.46290	- .94030	.32200	-.01200	.46300	.00000	.00000	.00000
.395	52.260	8.09340	12.21270	.36640	-.51990	-.71150	.00520	.46030	.00000	.00000	.00000
.395	54.260	9.37900	15.72950	.12520	.49710	3.50010	.02360	.44650	.00000	.00000	.00000
.395	56.300	10.14720	17.58320	.04290	.55480	5.19680	-.01370	.44200	.00000	.00000	.00000
.395	58.310	10.50310	18.33910	-.07480	.22520	5.55540	-.06970	.44090	.00000	.00000	.00000
.395	60.310	10.74550	18.52010	-.13950	-.72040	2.73250	-.04190	.44280	.00000	.00000	.00000
.395	62.310	10.98630	18.50620	-.17050	-.22220	4.43280	-.02430	.44590	.00000	.00000	.00000
.395	64.300	11.40990	18.50810	-.23600	-.21340	2.09680	-.05880	.45100	.00000	.00000	.00000
.395	66.320	12.62220	19.66990	-.35790	-.20600	1.64030	-.03570	.45620	.00000	.00000	.00000
.395	68.320	11.88450	18.01970	-.39320	-.27580	1.55500	-.00540	.45970	.00000	.00000	.00000
.395	70.190	11.50990	16.71540	-.47540	-.36480	-.15210	-.03300	.46430	.00000	.00000	.00000
.395	60.330	10.73950	18.51950	-.09470	-.18700	6.05710	-.00550	.44350	.00000	.00000	.00000
GRADIENT		0.000	00.000	00.000	00.000	00.000	.00000	00.000	.00000	.00000	.00000

DATE 10 JUL 75

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## TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(R1H0061) (10 JUL 75)

## REFERENCE DATA

SREF = 5030 SQ. IN. YMRP = 5.7210 IN. XS  
 LREF = 8000 IN. YMRP = 000.0 IN. YS  
 BREF = 8000 IN. ZMRP = 0.0000 IN. ZS  
 SCALE = 0055

## PARAMETRIC DATA

BETA = 000 PHI = 300  
 NOZZLE = .000

RUN NO. 257/1 RN/L = 5.40 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
401	70 300	10.14020	11.81910	-1.18530	2.85900	-1.16770	0.1350	.48830	00000	00000	00000
401	72 210	10.17800	12.79380	-1.14790	2.58910	1.05730	-0.2400	.48080	00000	00000	00000
401	74 230	10.31990	12.91100	-1.25300	1.10200	1.49820	-0.0520	.48130	00000	00000	00000
401	76 210	10.60120	13.01750	0.90700	6.93400	1.33510	-0.0570	.320	00000	00000	00000
401	78 210	10.91230	13.24710	1.02500	4.33000	1.42670	-0.8330	.48430	00000	00000	00000
401	80 210	10.53830	12.98610	1.15900	2.42100	1.75350	-1.05520	.48650	00000	00000	00000
401	82 200	11.03930	12.15000	1.17150	5.34500	1.71840	-0.4670	.49050	00000	00000	00000
401	84 180	10.85790	10.62280	3.14900	6.93300	1.91000	-1.6280	.50360	00000	00000	00000
401	86 160	11.05460	8.25790	5.79100	1.39600	1.26790	-0.5300	.52240	00000	00000	00000
401	88 160	10.95090	6.94090	7.05700	1.24600	1.75050	-0.1440	.51170	00000	00000	00000
401	90 230	10.47130	5.26550	5.90400	5.02000	1.74630	-0.2510	.47540	00000	00000	00000
401	82 210	10.95750	13.01540	15580	2.91500	1.84200	-0.6310	.49050	00000	00000	00000
GRADIENT		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.00000	00000	00000	00000

RUN NO. 256/0 RN/L = 4.32 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
493	70 360	11.83370	16.67540	-2.21900	-3.82200	-2.47300	-0.1920	.48900	00000	00000	00000
493	72 250	12.03560	16.23810	-2.41600	-3.78500	-3.47200	-0.6130	.47300	00000	00000	00000
493	74 250	11.90730	15.46550	-0.93200	-1.45440	-2.78900	-0.2870	.47740	00000	00000	00000
493	76 230	11.93430	14.99500	0.05400	-2.65500	-4.83700	-0.4170	.48090	00000	00000	00000
493	78 240	12.11000	15.31320	0.69600	-0.39800	-4.59700	-0.3430	.48000	00000	00000	00000
493	80 220	11.93740	14.40330	0.92000	-6.57000	-8.43500	-0.3030	.48430	00000	00000	00000
493	82 220	11.66880	12.62270	2.61500	-1.53510	-6.95600	-0.3430	.49510	00000	00000	00000
493	84 180	11.71150	11.23290	4.73500	-2.48100	-1.37300	0.1000	.510	00000	00000	00000
493	86 200	11.89670	9.97860	6.15000	-3.46300	-1.41700	0.2710	.51500	00000	00000	00000
493	88 150	12.07690	8.24590	6.65800	-4.45300	-1.50970	0.1230	.51700	00000	00000	00000
493	90 240	12.31270	7.29540	6.11300	-4.45500	-1.27140	-0.0310	.51700	00000	00000	00000
493	82 170	11.94580	14.50900	05450	-6.47200	-8.73300	-0.3170	.44300	00000	00000	00000
GRADIENT		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.00000	00000	00000	00000

(R14006) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

REFERENCE DATA

SREF = 5030 SQ IN AMRP = 5.7210 IN. XS  
LREF = 8000 IN ZMRP = .0000 IN. YS  
BREF = 8000 IN ZMRP = .0000 IN. ZS  
SCALE = 0055

RUN NO. 265/ 1 RN/L = 5.12 GRADIENT INTERVAL = -5.30/ 5.00

MACH	ALPHA	CLMH	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
595	70 430	12 14680	16 78180	- 10860	- 104750	- 37910	- 102760	47070	00000	00000	00000
599	72 320	12 36360	16 63520	- 08300	.10930	.72900	- .05620	47370	00000	00000	00000
599	74 340	12 46480	16 73100	03900	24110	2 00850	- 08340	47390	00000	00000	00000
599	76 320	12 44100	16 54510	09960	- 20270	.15300	- 07580	47490	00000	00000	00000
599	78 290	12 45080	15 06750	20040	- 06530	92240	- 06130	48460	00000	00000	00000
599	80 250	12 27050	12 83830	42190	.10290	64700	- 05600	48900	00000	00000	00000
599	82 220	12 37370	11 61940	53730	21930	63020	- 06160	50680	00000	00000	00000
599	84 200	12 56080	10 50580	69710	14500	1 01110	- 06730	51510	00000	00000	00000
599	86 220	12 71620	9 44560	77760	10770	90620	- 06610	52280	00000	00000	00000
599	88 190	12 68320	7 97460	76110	17010	1 17930	- 04530	53210	00000	00000	00000
599	90 230	12 64350	7 04160	73510	24610	1 26010	- 05320	53400	00000	00000	00000
599	92 240	12 17650	12 75800	40080	10160	59540	- 08510	49790	00000	00000	00000
GRAT ENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 264/ 0 RN/L = 6.00 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CLMH	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
799	70 590	14 13430	18 37410	.03660	- 25900	- 55190	01760	47730	00000	00000	00000
799	72 440	14 13420	16 81060	.13820	- 19950	- 63410	01240	48630	00000	00000	00000
799	74 430	14 22860	15 82160	24010	- 17890	- 69750	01350	49270	00000	00000	00000
799	76 380	14 24800	14 81780	.38960	- 11870	- 77500	02370	49850	00000	00000	00000
799	8 340	14 30750	14 08710	48280	- 14530	- 54480	03590	50300	00000	00000	00000
799	80 330	14 31940	13 14230	53840	- 17120	- 42370	- 00610	50850	00000	00000	00000
799	82 330	14 43670	12 55000	.53150	- 19560	- 39110	02570	51250	00000	00000	00000
799	84 290	14 49260	11 74910	53040	- 23100	- 19610	00790	51720	00000	00000	00000
799	86 300	14 65800	10 74160	54970	- 25130	- 19840	.00980	52360	00000	00000	00000
799	88 240	14 86900	9 52500	55330	- 29770	- 03130	01600	53110	00000	00000	00000
799	90 090	14 95480	8 31290	67460	- 30630	- 05610	02040	53800	00000	00000	00000
799	92 150	14 38930	13 28010	53630	- 16670	- 33400	02660	54910	00000	00000	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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DATE 10 JUL 75

LABULATED SOURCE DATA, MSFC (MI) BUN, SA-RP

PAUSE 23  
(RIH006) ( 10 JUL 75 )

MSFC WTECH (SABF) SPB CLEAN W RINGS

REFERENCE DATA

SREF = 5070 SQ IN XMRP = 5 7210 IN XS  
LREF = 8000 IN YMRP = 0000 IN YS  
BREF = 8000 IN ZMRP = 0000 IN ZS  
SCALE = 0055

PARAMETRIC DATA

BETA = 000 PHI = 000  
NOZZLE = 000

RUN NO 261/ 1 RN/L = 6 96 GRADIENT INTEL = -5 00/ 5 00

MACH	ALPHA	C/M	CL/M	CA	C/M	C/M	C/M	C/N	XCP/L	CBP1	CBP2	CBP3
1.195	70 610	18 24310	14 73510	86240	- 32180	- 18100	- 18100	- 01380	50930	00000	00000	00000
1.195	72 510	18 84490	14 86700	81390	- 31770	- 18560	- 18560	- 00880	51220	00000	00000	00000
1.195	74 500	18 83300	14 60750	76300	- 31480	- 19000	- 19000	- 00670	51550	00000	00000	00000
1.195	76 400	19 23200	14 62340	70020	- 31450	- 19730	- 19730	- 00090	51800	00000	00000	00000
1.195	78 400	19 42190	14 44640	63550	- 31200	- 16320	- 16320	- 00300	51930	00000	00000	00000
1.195	80 450	19 62410	14 37000	54610	- 30260	- 20580	- 20580	- 00290	52060	00000	00000	00000
1.195	82 470	19 74490	14 22150	49640	- 29560	- 21530	- 21530	- 00460	52230	00000	00000	00000
1.195	84 420	19 84910	13 71940	43770	- 29570	- 19370	- 19370	- 00580	52490	00000	00000	00000
1.195	86 430	19 93710	13 44100	35480	- 31990	- 19750	- 19750	- 00780	52830	00000	00000	00000
1.195	88 400	19 82950	12 59020	39930	- 28280	- 09630	- 09630	- 00150	53080	00000	00000	00000
1.195	90 450	19 54430	12 30920	31500	- 28490	- 11910	- 11910	- 01100	53200	00000	00000	00000
1.195	92 450	19 26630	14 70890	63200	- 24450	- 13300	- 13300	- 01760	52050	00000	00000	00000
1.195	94 450	19 00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 226/ 0 RN/L = 7 10 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	C/M	CL/M	CA	C/M	C/M	C/M	C/N	XCP/L	CBP1	CBP2	CBP3
1.196	70 610	18 24310	14 73510	86240	- 32180	- 18100	- 18100	- 04430	51750	00000	00000	00000
1.196	72 510	18 84490	14 86700	81390	- 31770	- 18560	- 18560	- 04180	51830	00000	00000	00000
1.196	74 500	18 83300	14 60750	76300	- 31480	- 19000	- 19000	- 0310	52010	00000	00000	00000
1.196	76 400	19 23200	14 62340	70020	- 31450	- 19730	- 19730	- 0210	52130	00000	00000	00000
1.196	78 400	19 42190	14 44640	63550	- 31200	- 16320	- 16320	- 0340	52270	00000	00000	00000
1.196	80 450	19 62410	14 37000	54610	- 30260	- 20580	- 20580	- 04090	52360	00000	00000	00000
1.196	82 470	19 74490	14 22150	49640	- 29560	- 21530	- 21530	- 0490	52460	00000	00000	00000
1.196	84 420	19 84910	13 71940	43770	- 29570	- 19370	- 19370	- 03420	52570	00000	00000	00000
1.196	86 430	19 93710	13 44100	35480	- 31990	- 19750	- 19750	- 03420	52730	00000	00000	00000
1.196	88 400	19 82950	12 59020	27000	- 31700	- 22030	- 22030	- 04280	52950	00000	00000	00000
1.196	90 450	19 46120	13 17210	11270	- 31700	- 22030	- 22030	- 04280	52950	00000	00000	00000
1.196	92 450	19 49370	14 48030	55180	- 29940	- 21740	- 21740	- 03290	52270	00000	00000	00000
1.196	94 450	19 00000	00000	00000	00000	00000	00000	- 00000	00000	00000	00000	00000



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(RTH006) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0080 IN. YS  
BREF = 8200 IN. ZMRP = 0.000 IN. ZS  
SCA E = 0055

PARAMETRIC DATA

BETA = .000  
NOZZLE = .000

RUN NO 287/ 0 RN/L = 5 24 GRADIENT INTERVAL = -5 00 5 00

MACH	ALPHA	CMA	CLMM	CA	CYM	CYMM	LBL	XCP/L	CBP1	CBP2	CBP3
2 740	70 410	17 73750	13 58900	94980	-25730	-17960	-01830	52090	00000	00000	00000
2 740	72 320	18 10250	13 76210	89100	-26230	-15320	-01400	52140	00000	00000	00000
2 740	74 320	18 45750	13 95810	71530	-26880	-17060	-00760	52170	00000	00000	00000
2 740	76 310	18 69150	13 84620	74180	-25510	-14900	-00620	52290	00000	00000	00000
2 740	78 270	18 92050	13 74080	65340	-26790	-16940	-01010	52420	00000	00000	00000
2 740	80 310	19 22950	13 73580	58020	-28020	-13730	-00310	52510	00000	00000	00000
2 740	82 320	19 43670	13 61100	49450	-26740	-14820	-00010	52620	00000	00000	00000
2 740	84 240	19 54260	13 38150	42290	-27950	-14640	-00140	52750	00000	00000	00000
2 740	86 330	19 62900	13 15640	34230	-28430	-16940	-02470	52870	00000	00000	00000
2 740	88 300	19 69740	12 76450	26290	-28730	-18100	-01810	53050	00000	00000	00000
2 740	90 140	19 71330	12 34220	18130	-27260	-13640	-00430	53210	00000	00000	00000
2 740	92 310	19 21100	13 65160	58090	-27980	-15740	-00000	53400	00000	00000	00000
2 740	94 300	19 00000	13 00000	00000	00000	00000	00000	53600	00000	00000	00000

GRADIENT

RUN NO 286/ 0 RN/L = 7 15 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CMA	CLMM	CA	CYM	CYMM	LBL	XCP/L	CBP1	CBP2	CBP3
3 480	70 440	17 25270	13 6 350	96120	-25010	-119240	-00080	51900	00000	00000	00000
3 480	72 340	17 66520	13 43950	90610	-24610	-18020	-01290	51900	00000	00000	00000
3 480	74 350	17 97100	13 94560	83390	-26000	-18310	-00680	52000	00000	00000	00000
3 480	76 340	18 24510	13 34610	76570	-26450	-20580	-00070	52000	00000	00000	00000
3 480	78 340	18 58340	13 36830	69740	-26710	-17060	-01030	52210	00000	00000	00000
3 480	80 310	18 70230	13 75000	65900	-27050	-19160	-00510	52340	00000	00000	00000
3 480	82 340	18 90150	13 61100	54190	-25310	-21160	-00350	52470	00000	00000	00000
3 480	84 320	19 09820	13 47740	45730	-24890	-18390	-00680	52580	00000	00000	00000
3 480	86 340	19 15500	13 34230	40470	-24480	-18140	-01210	52700	00000	00000	00000
3 480	88 310	19 36740	12 76450	34400	-23450	-14720	-00930	52800	00000	00000	00000
3 480	90 340	19 30700	12 40330	24450	-23130	-14530	-00600	52900	00000	00000	00000
3 480	92 350	18 70590	13 34610	50310	-26290	-18100	-00000	53000	00000	00000	00000
3 480	94 300	18 00000	13 00000	00000	00000	00000	00000	53200	00000	00000	00000

GRADIENT

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

DATE 10 JUL 75

(RIH007) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/IRINGS

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN XS  
 LREF = 4000 IN YMRP = 0000 IN YS  
 BREF = 4000 IN ZMRP = 0000 IN ZS  
 SCALE = 0055  
 BETA = 300 PHI = 300  
 NOZZLE = 0.0

RUN NO. 431/ 0 RN/L = 3 08 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLHM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
421	80 150	12 55610	15 36900	21190	- 16540	95280	- .06780	48350	00000	00000	00000
421	80 140	12 28350	14 14070	36830	18320	.52790	- .05020	48940	00000	00000	00000
421	84 240	11 93750	11 75470	59230	09300	1 09880	- .06360	50340	00000	00000	00000
421	86 400	12 15800	9 53820	84090	38050	- 16510	- .05660	51940	00000	00000	00000
421	88 150	12 31440	7 85600	92330	28740	- 67630	.00840	51130	00000	00000	00000
421	90 190	12 31050	6 75680	87330	26180	- 11730	- .09300	51850	00000	00000	00000
421	92 190	12 11220	6 19400	72790	11690	1 46460	- .01910	54110	00000	00000	00000
421	94 170	12 33280	5 62700	74060	.31720	-1.02410	.00130	54610	00000	00000	00000
421	96 160	12 372.0	5 36540	70490	12900	.22560	- .07630	54800	00000	00000	00000
421	98 180	12 27430	5 02420	34910	- 27050	56230	- .05470	55000	00000	00000	00000
421	100 000	12 44990	4 53500	18820	- 25310	- 87730	- .09810	54370	00000	00000	00000
421	90 170	12 14490	6 47790	91030	29790	- 16800	- .10610	53590	00000	00000	00000
GRADIENT		00000	00000	00000	00000	07000	00000	00000	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(IRIM008) (10 JUL 75)

REFERENCE DATA

SABF = 5030 SQ IN XMRP = 5 7210 IN XS  
MRP = 8000 IN YMRP = 6000 IN YS  
ZMRP = 8000 IN ZMRP = 8000 IN ZS  
SCALE = 3055

BETA = 0.00 PHI = 0.00  
NOZZLE = 0.00

PARAMETRIC DATA

RUN NO 279/ 0 RUN/L = 5 39 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
403	10 360	10 58880	11 60070	34770	34670	1 81080	- 03480	49400	00000	00000	00000
403	10 360	10 69460	10 93840	37010	83330	3 44980	- 03370	49990	00000	00000	00000
403	10 360	10 74990	10 05440	54170	80520	3 03650	- 04360	50710	00000	00000	00000
403	10 360	10 52460	8 86700	61430	64710	2 14430	- 0 740	4 2990	00000	00000	00000
403	10 360	10 05490	7 17450	63720	52670	2 26210	- 0 710	53000	00000	00000	00000
403	10 360	10 83340	6 21310	54320	53530	14230	01520	53810	00000	00000	00000
403	10 360	10 74450	5 48340	54850	4 4970	6 1340	- 0 750	4 710	00000	00000	00000
403	10 360	10 74450	5 48340	43490	33780	11 510	- 04740	4 340	00000	00000	00000
403	10 360	10 51630	4 51630	25700	25700	16790	- 05290	54570	00000	00000	00000
403	10 360	10 24140	4 62110	12870	17180	15440	- 02920	54930	00000	00000	00000
403	10 360	10 34670	4 34670	- 00430	19000	10680	- 0 740	54310	00000	00000	00000
403	10 360	10 84400	6 11400	43400	50510	89380	- 0 740	4 740	00000	00000	00000
403	10 360	10 0000	00000	00000	00000	00000	- 0 740	0 740	00000	00000	00000

RUN NO 279/ 0 RUN/L = 4 09 GRADIENT INTERVAL = 5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
406	10 360	12 1440	12 3410	47590	5850	64840	- 05390	4 740	00000	00000	00000
406	10 360	12 430	11 43040	44450	04450	43000	- 04220	51530	00000	00000	00000
406	10 360	12 430	10 34670	0 740	- 0 740	00000	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	9 1540	44450	1 440	53100	- 0 740	0 740	00000	00000	00000
406	10 360	12 430	7 85970	44450	44450	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	6 74330	44450	46500	34430	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	5 6240	44450	23440	10 740	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	4 51630	44450	04450	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	3 40740	44450	04450	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	2 29850	44450	14440	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	1 18960	44450	14440	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	0 08070	44450	14440	1 440	- 0 740	4 740	00000	00000	00000
406	10 360	12 430	0 08070	44450	14440	1 440	- 0 740	4 740	00000	00000	00000

(RIH008) ( 10 JUL 75 )

MSFC TWTED4 (SABF) SRB CLEAN W/RTINGS

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN. X5  
 UNLF = 8000 IN XMRP = 0000 IN. Y5  
 BRKF = 8000 IN XMRP = 0000 IN. Z5  
 SCALE = 0.05

BETA = 000  
 NOZZLE = 000

RUN NO 2787 0 RN/L = 6 34 GRAFIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
902	80 450	15 72390	13 73550	56056	- 14930	- 28680	- 02110	51210	00000	00000	00000
902	82 320	15 53360	13 04360	53540	- 18810	- 27930	- 01520	51560	00000	00000	00000
902	84 310	16 03560	12 15490	52680	- 20630	- 29980	- 02530	52150	00000	00000	00000
902	86 240	16 14930	11 02300	49160	- 21070	- 22730	- 00780	52770	00000	00000	00000
902	88 260	16 35450	9 57040	59990	- 23220	- 20400	- 00940	53560	00000	00000	00000
902	90 170	16 50760	8 62780	68770	- 23330	- 21070	- 01530	54070	00000	00000	00000
902	92 140	16 47750	7 77730	63340	- 22980	- 19600	- 00190	54490	00000	00000	00000
902	94 110	16 45130	6 92650	56330	- 24210	- 19230	- 01670	54930	00000	00000	00000
902	96 80	16 27170	6 01180	45440	- 24730	- 15450	- 01160	55320	00000	00000	00000
902	98 100	16 20510	5 28620	30130	- 24220	- 15630	- 03310	55780	00000	00000	00000
902	100 490	16 14140	4 70550	14520	- 23550	- 14900	- 01780	56150	00000	00000	00000
902	102 170	16 54270	8 61770	67030	- 21480	- 24160	- 02430	56410	00000	00000	00000
902	104 170	16 54270	8 61770	67030	- 21480	- 24160	- 02430	56410	00000	00000	00000

RUN NO 2787 0 RN/L = 6 55 GRAFIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
997	80 490	17 87420	15 48710	58120	- 17830	- 20000	- 00550	51270	00000	00000	00000
997	82 360	18 25430	14 86840	59300	- 20730	- 04750	- 02230	51700	00000	00000	00000
997	84 360	19 04160	15 05990	60120	- 22620	- 03380	- 03310	51910	00000	00000	00000
997	86 240	19 47650	14 13290	56630	- 19760	- 10660	- 00680	52420	00000	00000	00000
997	88 260	19 72510	13 33270	50150	- 18660	- 08100	- 00290	52820	00000	00000	00000
997	90 240	19 64500	12 31750	41740	- 19050	- 05110	- 00310	53170	00000	00000	00000
997	92 210	19 36300	11 34230	32550	- 20890	- 07120	- 01080	53560	00000	00000	00000
997	94 180	19 24910	10 50490	21150	- 21180	- 07090	- 01370	53860	00000	00000	00000
997	96 170	18 98490	9 52810	10600	- 23010	- 04650	- 02430	54240	00000	00000	00000
997	98 160	18 64930	8 59250	- 00950	- 25480	- 00640	- 00710	54580	00000	00000	00000
997	100 000	18 39910	7 77630	- 13450	- 27260	- 08040	- 00420	54890	00000	00000	00000
997	102 240	18 59310	12 31460	42880	- 18890	- 07350	- 00480	55210	00000	00000	00000
997	104 240	18 59310	12 31460	42880	- 18890	- 07350	- 00480	55210	00000	00000	00000

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(RIH009) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .0000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

BETA =  
 NOZZLE =

RUN NO. 271/ 0 RN/L = 5.31 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.400	90.370	11.32560	13.79050	.21040	-.29320	-.63280	.00970	.48400	.00000	.00000	.00000
.400	82.280	11.38630	12.56080	.28420	-.17870	-.92150	.03280	.48620	.00000	.00000	.00000
.400	84.270	11.22410	12.54890	.31480	-.58080	-1.91330	.01890	.49220	.00000	.00000	.00000
.400	86.210	11.15120	9.80330	.55210	-.19100	-.47570	.04500	.51170	.00000	.00000	.00000
.400	88.180	11.21370	7.69220	.66120	-.42990	-.38670	.05460	.52740	.00000	.00000	.00000
.400	90.180	11.32540	6.59630	.68340	-.49360	-.72860	.03770	.53590	.00000	.00000	.00000
.400	92.180	11.21500	6.16540	.63430	-.40840	-.23650	.03710	.53850	.00000	.00000	.00000
.400	94.160	11.09700	5.14380	.47120	-.26350	.45990	-.02050	.54560	.00000	.00000	.00000
.400	96.180	11.10600	4.77720	.33680	-.16180	.17790	.02910	.54830	.00000	.00000	.00000
.400	98.180	11.17810	4.66540	.15120	-.20870	.20520	.01670	.54930	.00000	.00000	.00000
.400	100.040	11.26240	3.90850	.02560	-.07850	-.40460	.05490	.55510	.00000	.00000	.00000
.400	90.180	11.12070	6.59700	.63020	-.59300	-.63690	.01580	.53500	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

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TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

(RIH012) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINOS

## REFERENCE DATA

SREF = .5030 SQ.IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 239/ 1 RN/L = 5.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CSL	XCP/L	CBP1	CBP2	CBP3
396	129.580	5.47290	-5.28740	-1.75130	1.06910	.49350	-.01040	.66220	.00000	.00000	.00000
396	127.670	5.87070	-5.63700	-1.68490	-.09770	.59450	-.00140	.66170	.00000	.00000	.00000
396	125.640	6.45540	-5.48300	-1.59890	1.58220	.95060	.00840	.65270	.00000	.00000	.00000
396	123.650	6.95690	-5.51390	-1.51980	.03520	1.49590	.02030	.64800	.00000	.00000	.00000
396	121.650	7.50340	-5.41710	-1.41390	1.31020	-.10360	.00840	.64230	.00000	.00000	.00000
396	119.630	8.36120	-6.00950	-1.29740	.09660	1.37070	-.00430	.64200	.00000	.00000	.00000
396	117.610	8.79250	-5.81080	-1.21170	-.10910	2.45600	-.00130	.63730	.00000	.00000	.00000
396	115.650	8.65440	-4.50320	-1.05670	-.62700	2.07190	.00550	.62580	.00000	.00000	.00000
396	113.610	9.09120	-3.69420	-.91550	-.30240	.50070	-.05540	.61650	.00000	.00000	.00000
396	111.620	9.29860	-2.55280	-.77200	-.09560	.24500	-.01410	.60580	.00000	.00000	.00000
396	109.750	9.70100	-1.65960	-.66780	-.19520	.86850	.01090	.59730	.00000	.00000	.00000
396	119.630	8.30890	-6.02610	-1.30120	22340	1.22960	.00080	.64250	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 241/ 1 RN/L = 5.25 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CSL	XCP/L	CBP1	CBP2	CBP3
.603	129.500	7.02580	-4.91430	-1.71000	1.77440	2.46740	.01200	.64040	.00000	.00000	.00000
.603	127.590	7.65600	-4.89710	-1.65630	1.44020	1.47630	.01100	.63540	.00000	.00000	.00000
.603	125.560	8.36090	-4.67610	-1.56940	.81760	1.15250	.00590	.62900	.00000	.00000	.00000
.603	123.590	8.85830	-3.73260	-1.47990	.46830	.41140	.01030	.61770	.00000	.00000	.00000
.603	121.590	9.39570	-2.92780	-1.37240	.73650	.45780	.01090	.60880	.00000	.00000	.00000
.603	119.600	10.02990	-2.09200	-1.24130	.51340	-.16380	.01330	.60040	.00000	.00000	.00000
.603	117.560	10.73480	-2.27070	-1.03620	.35610	.58530	.02870	.60060	.00000	.00000	.00000
.603	115.590	11.12890	-1.45340	-.85830	.09110	.41670	-.02130	.59400	.00000	.00000	.00000
.603	113.580	11.33300	-1.04230	-.67900	-.26930	1.07860	-.01460	.59090	.00000	.00000	.00000
.603	111.560	11.49180	-.65150	-.44440	-.09600	1.52190	.02320	.58800	.00000	.00000	.00000
.603	109.620	11.75530	-.32030	-.37510	.30360	.30360	.01770	.58560	.00000	.00000	.00000
.603	119.600	9.98860	-2.08760	-1.23170	.66710	1.09950	.00120	.60040	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TW1604 (SABF) SAB CLEAN W/RINGS

(R1H0!2) ( 10 JUL 75 )

### REFERENCE DATA

XSREF =	.5030 SQ. IN.	YMRP =	5.7210 IN. XS
YREF =	.8000 IN.	YMRP =	.0000 IN. YS
ZREF =	.8000 IN.	ZMRP =	.0000 IN. ZS
SCALE =	.0055		

### PARAMETRIC DATA

BETA	000	PHI	000
NOZZLE	000		

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RUN NO. 242/ 0  RN/L = 6.35  GRADIENT INTERVAL = -5.00/ 5.00

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[illegible]

RUN NO. 243/ J      RN/L = 6.77      GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.195	129 290	13 22490	1 36360	-1 87530	.13120	.12410	- .01320	57480	.00000	.00000	.00000
.195	127 370	13 66660	1 93680	-1 71420	.14280	.07370	- .01230	57200	.00000	.00000	.00000
.195	125 370	14 50890	2 48060	-1 55330	.16580	.06310	- .00410	55940	.00000	.00000	.00000
.195	123 390	15 10070	2 96660	-1 36640	.19670	.02400	- .01700	56730	.00000	.00000	.00000
.195	121 380	15 58190	3 29960	-1 23310	.22810	.04520	- .01100	56610	.00000	.00000	.00000
.195	119 370	16 00050	3 82730	-1 13710	.21450	.04940	- .00940	56390	.00000	.00000	.00000
.195	117 370	16 48470	4 29580	-.94910	.21960	.08750	- .00770	56210	.00000	.00000	.00000
.195	115 360	16 81360	4 83090	-.76910	.22850	.11920	- .01380	55990	.00000	.00000	.00000
.195	113 360	17 09870	5 06370	-.56680	.21920	.11720	- .01800	55920	.00000	.00000	.00000
.195	111 360	17 31010	5 25090	-.38520	.23540	.08430	- .01270	55860	.00000	.00000	.00000
.195	109 480	17 50880	5 59860	-.21180	.25350	.11860	- .01450	55730	.00000	.00000	.00000
.195	119 370	15 90280	3 83340	-1.10190	.20690	.04820	- .00490	56370	.00000	.00000	.00000
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	56000	.00000	.00000	.00000



MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(R1H013) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	50. IN.	XMRP	=	5.7210	IN. XS
LREF	=	.8000	IN.	YMRP	=	.0000	IN. YS
BREF	=	.5000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

BETA	0.000	0.000	0.000
NOZZON	0.000	0.000	0.000

### PARAMETRIC DATA

RUN NO.	240/ 0	RM/L	= 2.89	GRADIENT INTERVAL	= -5.00/ 5.00
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[illegible]



(RIH015) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 436/ 0 RN/L = 5.13 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CSL	XCP/L	CBP1	CBP2	CBP3
346	129 600	5 56940	-5.76200	-1 75220	.69220	-1.79860	.00670	66810	.00000	.00000	.00000
346	127 690	5 82450	-5.92700	-1.67210	.26010	-1.22320	-.04730	66640	.00000	.00000	.00000
346	125 660	6 56740	-5.82390	-1.63070	1.86800	-.73060	.02390	65580	.00000	.00000	.00000
346	123 660	7 15020	-5.65350	-1.55790	1.77610	-1.58610	.01210	64790	.00000	.00000	.00000
346	121 650	7 56000	-5.40740	-1.43500	-1.03410	-.42190	.01000	64600	.00000	.00000	.00000
346	119 640	8 28280	-5.66020	-1.32430	-1.37770	-.88230	.04930	63910	.00000	.00000	.00000
346	117 630	8 62400	-5.05210	-1.20270	-1.36040	-.52030	.02440	63120	.00000	.00000	.00000
346	115 660	8 77090	-3.99370	-1.07670	-.62680	1.96760	.04480	62050	.00000	.00000	.00000
346	113 670	9 20810	-2.77500	-.96720	-.58720	1.97570	.01290	60800	.00000	.00000	.00000
346	111 660	9 68450	-1.52130	-.85830	-.86610	1.57290	.03530	59200	.00000	.00000	.00000
346	109 710	10 04950	-.07500	-.70560	-.84930	24110	.00330	58400	.00000	.00000	.00000
346	119 640	8 13650	-5.12760	-1.34020	-1.26630	-.75820	.00600	64040	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	.00000	.00000	.00000

TABLED SOURCE DATA, MSFC TWT 604, SA-8F

MSFC TW1604 (SABF) SRB CLEAN W/RINGS

(R1H016) ( 10 JUL 75

## REFERENCE DATA

SREF =	.5030	SQ IN.	XMRP =	5.7210	IN. XS
LREF =	8000	IN	YMRP =	0000	IN. YS
OMT =	8000	IN	ZMRP =	.0000	IN ZS
SCALE =	0055				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
ALPHA	=	.000			
37ZCC	=	.000			
NOZZLE	=	.000			

RUN NO	149/1	RM/L	5 23	GRADIENT	INTERVAL	-5 00/	5 00
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[illegible]

RUN NO.	148/ 0	RN/L =	4.29	GRADIENT	INTERVAL =	-5 00/ 5 00
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[illegible]

TABULATED SOURCE DATA. MSFC TWT 604, SA-8F

DATE 10 JUL 75

( R1H016 ) ( 10 JUL 75 )

MSFC TW7604 (SABF) SRB CLEAN W/RINGS

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

SREF	=	.5030	50.	IN.	XPRP	=	5.7210	IN.	XS
LREF	=	.8000	IN.		YPRP	=	.0000	IN.	YS
SOLF	=	.8000	IN.		ZPRP	=	.0000	IN.	ZS
SCALE	=	.0095							

Run No	147/1	RN/L = 4 85	GRADIENT INTERVAL =	-5 00/	5 00
Run No	147/1	RN/L = 4 85	GRADIENT INTERVAL =	-5 00/	5 00

MACH	ALPHA	CMM	CLIMB	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
596	149 470	3 21730	-1 162390	-2 00670	38860	37300	-.00300	64750	00000	-.00000	00000
596	147 510	3 65790	-1 98460	-2 00340	35150	09420	-.02320	62760	00000	00000	00000
596	145 450	4 10250	-2 54560	-1 97680	32590	-	-.03460	63000	00000	00000	00000
596	143 410	4 38740	-3 19630	-1 93120	34990	-43290	-.03770	64210	00000	00000	00000
596	141 380	4 57360	-3 60330	-1 92340	34640	-.56220	-.03230	64760	00000	00000	00000
596	139 340	4 77460	-4 18020	-1 88160	42980	56120	01040	65480	00000	00000	00000
596	137 290	5 14520	-4 73300	-1 83620	43560	-40410	-.00920	64730	00000	00000	00000
596	135 270	6 43810	-.86950	-1 78450	51950	32400	02250	59430	00000	00000	00000
596	133 180	8 08990	0 08690	-1 72460	30990	-1 58350	-.01440	57240	00000	00000	00000
596	131 090	9 04260	1 04710	-1 71290	1 26880	-36920	01240	57400	00000	00000	00000
596	123 110	9 89060	1 02140	-1 67270	1 35530	-84490	-.02520	57430	00000	00000	00000
596	119 340	9 80470	-4 05470	-1 89500	42630	01540	00000	64200	00000	00000	00000

RUN NO. 150/ 0 RM/L = 5 86 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CMA	CLM4	CA	CIM	CYMH	CBL	XCP-L	CS-1	CP2	HP-3
799	148 420	3 172 11	-2 07540	-2 11410	19430	21510	01580	62830	-12830	-15890	-08430
799	146 420	4 97040	-2 46970	-2 26560	19670	30400	01960	63010	-17530	-18180	-08370
799	144 320	4 97040	-2 86270	-2 06270	09670	-	00250	61540	-26240	-1540	-08380
799	142 210	5 60300	-3 17230	-1 97050	03700	-23250	00230	62000	-28240	-10000	-08390
799	140 090	6 45870	-3 47690	-1 93110	35030	43800	03500	60710	-41780	-1450	-08400
799	138 970	7 16410	-3 96540	-1 84650	14510	24920	02340	60450	-49620	-3450	-08410
799	135 840	7 95160	-3 93170	-1 87270	15890	15940	03470	62350	-62130	-36000	-08420
799	133 710	9 14140	-3 50170	-1 77910	27500	49690	03180	61430	-73600	-34930	-08430
799	131 570	10 02370	-3 21150	-1 71730	16470	09070	05200	60340	-91500	-44520	-08400
799	129 430	10 44700	-3 27900	-1 61500	02160	-75500	04950	60790	-108100	-44520	-08400
799	127 330	1 44500	4 02880	-1 52630	-	-23250	01740	61120	-125800	-44520	-08400
799	137 600	7 38130	-3 97100	-1 89510	08770	11050	00400	60770	-11050	-44520	-08400

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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(IRIM016) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

## REFERENCE DATA

SMLF = 5030 50 IN XMRP = 5 7210 IN XS  
 LPLF = 8000 IN YMRP = 0000 IN. YS  
 BREF = 8000 IN ZMRP = 0000 IN. ZS  
 SCALE = 0005

## PARAMETRIC DATA

BETA = .000  
 NOZZLE = .000  
 PH: = .000

RUN NO. 151/ 1 RM/L = 6.28 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
899	148 970	4 24430	-2.93180	-2 27570	32090	.17270	.02720	63970	.00000	.00000	.00000
899	146 950	4 95360	-3 03590	-2 23960	32100	-.07770	.03090	63340	.00000	.00000	.00000
899	144 820	5 78450	-3 03620	-2 18440	.20620	-.28030	.04190	62620	.00000	.00000	.00000
899	142 640	6 71070	-3.55500	-2 13840	-.01520	-.20660	.04080	62660	.00000	.00000	.00000
899	140 460	7 64330	-4 08830	-2 11540	-.02150	-.29680	.03100	62700	.00000	.00000	.00000
899	138 320	8 37430	-4 61070	-2 04180	.10970	-.43950	.02430	62830	.00000	.00000	.00000
899	136 120	9 58480	-4 50760	-1.95690	.00930	.11980	.03920	.62170	.00000	.00000	.00000
899	133 950	10 29360	-5 61730	-1.84100	-.00870	-.08680	.03780	62790	.00000	.00000	.00000
899	131 810	10 82290	-6 88400	-1 80240	.00620	-.06300	.04390	.63530	.00000	.00000	.00000
899	129 650	11 42150	-7 63430	-1 65340	.02780	-.23810	.05090	63790	.00000	.00000	.00000
899	127 530	12 06200	-7 96180	-1 52850	-.01740	-.08750	.04530	63710	.00000	.00000	.00000
899	138 040	8 43190	-4 84060	-2.03460	.02880	.46700	.04710	63020	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	.00000	.00000	.00000	.00000

RUN NO. 152/ 0 RM/L = 6.39 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 001	147 730	5 83030	-4 87390	-2 50510	-.02510	-.10970	.01910	65160	-.32170	-.28190	-.15220
1 001	145 650	6 70100	-5 36740	-2 46460	-.04350	-.01760	.01090	64870	-.33620	-.29770	-.17770
1 001	143 450	7 54260	-6 02090	-2 37790	-.13160	.28110	.02600	64860	-.31550	-.29040	-.16890
1 001	141 240	8 81340	-5 56370	-2.34360	.00070	-.09900	.01700	63480	-.30570	-.34780	-.20450
1 001	139 060	9 86360	-5 89070	-2 25250	-.01570	-.120310	.02360	63210	-.28950	-.33320	-.21500
1 001	136 870	10 64410	-6 73750	-2 14150	.04680	.78680	.02920	63500	-.30330	-.29930	-.23290
1 001	134 640	11 53530	-7 35360	-2 05460	.06610	-.22120	.01050	63540	-.30330	-.30190	-.25580
1 001	132 480	12 76790	-6 37250	-1 98400	.18590	-.64690	.01850	62410	-.37210	-.33800	-.30240
1 001	130 350	13 52670	-6 36850	-1 87140	.22740	-.66340	.01150	62180	-.44640	-.38480	-.27360
1 001	128 180	14 39560	-5 91750	-1 68680	.04060	.50760	.01370	61690	-.51360	-.45370	-.24820
1 001	126 190	15 05180	-5 66830	-1 52370	.14050	-.64910	.02410	61410	-.69640	-.49107	-.31070
1 001	136 860	10 57910	-6 73730	-2 12030	.03400	.76110	.01850	63530	-.29970	-.28660	-.23660
GRADIENT		00000	00000	00000	00000	00000	00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA BF

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS

RIM0167 (10 JUL 75)

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. X5  
 LREF = .8000 IN. YMRP = .0000 IN. Y5  
 BREF = .8000 IN. ZMRP = .0000 IN. Z5  
 SCALE = .0055

BETA =  
 NOZZLE =

PARAMETRIC DATA

000 PHI = .000

RUN NO. 153/ 0 RN/L = 6 57 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLIM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1 193	147.440	7 28240	-2.12740	-2.71410	.05660	-.32290	.01040	.60720	-39930	-37010	-41410
1 193	145.380	8 17470	-1.93160	-2.64830	.04740	-.08440	.02660	.60260	-39170	-36510	-39340
1 193	143.200	9 11300	-1.75250	-2.58870	-.07760	.18050	.01990	.59910	-38690	-36610	-39360
1 193	141.020	10 05150	-1.45860	-2.51300	-.02320	.25410	.01890	.59520	-39150	-37550	-39200
1 193	138.650	11 00520	-1.11870	-2.45240	-.07720	.50580	.01600	.59170	-39200	-39420	-38690
1 193	136.650	12 30890	-.15660	-2.34100	.17070	-.67280	.00390	.51440	-39250	-43310	-38230
1 193	134.480	13 07900	-.25940	-2.23080	.37900	-.57110	.00350	.56500	-39250	-37690	-37600
1 193	132.350	13 72700	-.45560	-2.12650	.17820	-.26990	.02080	.58610	-38840	-36420	-37060
1 193	130.170	14 31450	-.62240	-2.01560	.08130	-.14440	.00590	.58690	-40070	-33430	-33430
1 193	126.040	14 88620	-1.08110	-1.80720	.09180	-.08080	.03860	.58930	-55130	-37240	-28720
1 193	126.040	15 37510	-1.14600	-1.61030	.09370	-.14960	.00250	.58430	-62610	-30470	-19760
1 193	136.650	12 29260	-1.0480	-2.34940	.16360	-.67380	.00340	.58410	-39410	-42680	-38450
GRADIENT		00000	00000	00000	00000	.00000	.00000	00000	00000	00000	00000

RUN NO. 113/ 0 RN/L = 7 14 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLIM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1 948	147.510	7 14640	1 09030	-2.68220	.02230	-.05070	.01480	.57090	-24430	-22830	-22830
1 948	145.480	7 81760	1 38770	-2.66030	.01770	-.04130	.01510	.56890	-24930	-23000	-23000
1 948	143.290	8 69540	1 72150	-2.64120	.03430	-.04860	.02260	.56720	-25930	-23340	-23750
1 948	141.110	9 52530	1 96510	-2.59660	.03690	-.09190	.01650	.56650	-26520	-23190	-23630
1 948	139.000	10 18250	2 29660	-2.51330	.05270	-.05820	.01740	.56500	-27330	-22360	-22730
1 948	136.830	10 92190	2 67130	-2.36920	.06380	-.05200	.02070	.56390	-27510	-21370	-22750
1 948	134.670	11 63700	2 89530	-2.23480	.07050	-.05380	.01130	.56330	-27620	-20450	-22750
1 948	132.530	12 31550	2 94560	-2.11540	.07900	-.04240	.01150	.56390	-26730	-19950	-20530
1 948	130.310	13 07440	2 99120	-1.98340	.09430	-.06270	.01410	.56470	-26730	-18570	-18040
1 948	128.230	13 60960	3 32050	-1.86270	.10530	-.04900	.01540	.56340	-26600	-17060	-16390
1 948	126.190	14 26210	3 41690	-1.74130	.11240	-.05560	.01130	.56390	-26730	-16130	-14710
1 948	124.640	10 74140	2 64710	-2.34050	.05350	-.04670	.00440	.56330	-26730	-14710	-22490
GRADIENT		00000	00000	00000	00000	.00000	.00000	00000	00000	00000	00000

MSFC TWT604 (SAB) SRB CLEAN W/RINGS

(11016) (10 JUL 75)

## REFERENCE DATA

SREF	•	5030	50	IN	XMPD	•	5.7210	IN	XS
LREF	•	8000	IN		YMPD	•	.0000	IN	YS
UREF	•	8000	IN		ZMPD	•	0000	IN	ZS
SCALE	•								

### PARAMETRIC DATA

BETA	-	.000	PHI	-	.000
NOZZLE	-	.000			

RUN NO. 154/ 0 RW/L = 5 05 GRADIENT INTERVAL = -5 00/ 5.00

[illegible]

RUN NO 155/ 0 RN/L 6.83 GRADIENT INTERVAL -5.00/ 5.00

[illegible]

MSFC TWT604 (SABF, SRB CLEAN W/RINGS)

(R1H016) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	YMRP	=	5.7210	IN. XS
LRF	=	.8000	IN.	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

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RUN NO.      156/ 0      RN/L =  6.71      GRADIENT INTERVAL =  -5.00/  5.00

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MACH	ALPHA	CNM	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.000	148.420	5.69100	1.58320	-2.68670	0.3360	-0.1440	-0.1940	.56070	-0.04990	-0.04140	-0.04720
4.000	146.440	6.33160	1.57700	-2.40060	0.3210	0.0070	-0.2080	.56310	-0.04910	-0.03630	-0.04640
4.070	144.370	6.96960	1.64400	-2.32280	0.3060	0.0430	-0.2140	.56410	-0.04750	-0.02930	-0.04330
4.000	142.290	7.65310	1.69580	-2.27810	0.3920	0.1520	-0.1580	.56530	-0.04710	-0.02050	-0.04160
4.000	140.210	8.29180	1.73600	-2.22980	0.4730	-0.1020	-0.2990	.530	-0.05160	-0.00730	-0.04030
4.000	138.130	8.97630	1.81460	-2.19350	0.5680	0.1160	-0.1930	.56690	-0.05750	-0.01250	-0.03920
4.000	136.040	9.59400	2.00930	-2.15930	0.6360	-0.02570	-0.3430	.56550	-0.06200	0.16160	-0.03440
4.000	134.000	10.23760	2.56060	-2.18410	0.6710	-0.1490	-0.0430	.56300	-0.06430	0.07930	-0.02500
4.000	131.900	10.85470	3.04150	-2.09240	0.6980	0.00760	-0.0250	.56050	-0.06500	.12610	-0.01360
4.000	129.840	11.47590	3.42350	-1.95810	0.8510	-0.02680	-0.0580	.55900	-0.06600	-0.17330	0.02050
4.000	127.900	12.04070	3.69830	-1.84600	0.9100	-0.02760	0.0410	.56830	-0.06660	.22080	0.02100
4.000	138.100	9.01260	1.79550	-2.18650	0.4760	-0.1490	0.2310	.56710	-0.06410	-0.03050	-0.03510
GRADIENT	0.0000	0.0000	0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	0.0000

RUN NO.	15	0	RN/L =	5.53	GRADIENT INTERVAL =	-5 00/	5 00
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[illegible]

RIH0171 10 JUL 75

MSFC TWT604 (SABF) SR8 CLEAN W/RINOS

### PARAMETRIC DATA

BETA	•	.000	PHI	•	.000
NOZZLE	•	.000			

## REFERENCE DATA

X\$REF =	.5030 SQ IN.	XMRP =	5.7210 IN. X5
Y\$REF =	.8000 IN.	YMRP =	.0000 IN. Y5
Z\$REF =	.8000 IN.	ZMRP =	.0000 IN. Z5
SCALE =	.0055		

RUN NO. 289/ 0 RN/L = 5.36 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 290/ 0 RN/L = 7.35 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]



REFERENCE DATA  
SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055  
PARAMETRIC DATA  
BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 133/ 0 RN/L = 5.16 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1
.397	169.070	.56580	-1.53800	-1.44480	-.01310	.04350	-.02560	.80510	.04630
.397	167.160	.70770	-1.73430	-1.52590	-.02710	-.00480	-.03140	.78330	.03420
.397	165.120	.94400	-1.88600	-1.59170	-.04300	.03190	-.03310	.74640	.02590
.397	163.110	1.21520	-2.07410	-1.66320	-.04250	.13390	-.05330	.72260	.01840
.397	161.090	1.49510	-2.27340	-1.72020	-.05840	.06480	-.05770	.69850	-.01420
.397	159.080	1.71040	-2.43330	-1.78960	-.06880	.15900	-.05870	.68040	.00350
.397	157.040	1.98350	-1.71660	-1.85950	.02020	.22770	-.04570	.65400	-.03850
.397	155.050	2.20840	-1.50180	-1.91630	.15410	.36020	-.07900	.63890	-.05070
.397	152.990	2.53590	-1.34920	-1.96080	.22950	.78450	-.02150	.62680	-.11560
.397	150.990	2.90630	-1.18640	-1.96450	.28060	.68200	-.02780	.61670	-.15020
.397	149.060	3.25790	-1.37050	-1.92830	.31140	.94050	-.04170	.61770	-.17450
.397	159.050	1.72360	-2.04710	-1.81100	.00970	.12050	-.06810	.68030	-.04610
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 134/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1
.599	169.040	.58740	-1.45710	-1.53920	-.01400	-.08240	.00840	.78570	.04490
.599	167.120	.79180	-1.70090	-1.61810	-.01070	-.08440	.00900	.75860	.02890
.599	165.060	1.07080	-1.92600	-1.68290	-.00950	-.00950	.00250	.73010	.02430
.599	163.050	1.35210	-2.06710	-1.74650	-.02120	.00290	.04390	.70810	.01190
.599	161.020	1.62830	-2.19550	-1.80410	-.02080	.06190	.03020	.69340	.00110
.599	159.000	1.83480	-2.12490	-1.86200	.01600	.08390	.03350	.67790	-.02020
.599	156.970	2.11830	-2.07910	-1.92280	.01650	.03610	.04580	.66340	-.03430
.599	154.950	2.38110	-1.93010	-1.99100	.09930	.23750	.01260	.64950	-.06540
.599	152.890	2.70020	-1.51910	-2.01550	.22840	.49910	.02840	.62930	-.11630
.599	150.890	3.05240	-1.36920	-1.96610	.27830	.52530	.00590	.62000	-.16260
.599	148.940	3.44900	-1.44070	-1.97150	.24570	.79650	.01620	.61740	-.23020
.599	158.980	1.86020	-2.17980	-1.83690	.02860	.11720	.02990	.67900	-.01110
	GRADIENT	.00000	.00700	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

ASFC TW1604 (SABF) SRB CLEAN W/RINGS

(R1H018) 10 JUL 75 1

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP
LREF	=	.8000 IN.	YMRP
BREF	=	8000 IN.	ZMRP
SCALE	=	.0055	

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO.	132/ 2	RN/L =	6.18	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 131 / 0 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

DATE 10 JUL 75

TADUATED SOURCE DATA, MSFC TWT 604, SA-8F

PAGE 47

MSFC TWT604 (SAFE) SRB CLEAN W/RINGS

(R14018) (10 JUL 75)

REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 112/ 0 RN/L = 7.08 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.955	168.840	91180	-1.28310	-2.46450	.03640	.07620	.00750	.69820	-.10930	-.10860	-.11650
1.955	166.850	1.29940	-1.39280	-2.49010	-.01380	-.02930	.01370	.67080	-.12410	-.12300	-.13240
1.955	164.700	1.81530	1.51670	-2.52450	-.06260	-.18950	.00000	.65150	-.14150	-.14000	-.15020
1.955	162.580	2.42940	-1.37590	-2.59370	-.25240	-.41490	.01440	.62960	-.15670	-.15410	-.16380
1.955	160.460	3.03980	-1.33310	-2.64920	-.04730	-.02140	.02000	.61910	-.16340	-.16080	-.16860
1.955	158.310	3.68630	-1.00570	-2.65750	-.01690	.08030	.01320	.60560	-.17200	-.17120	-.17650
1.955	156.160	4.38180	-.65360	-2.68550	.00320	.15440	.02120	.59550	-.18020	-.18020	-.18200
1.955	154.030	5.09580	-.30690	-2.70340	.02540	.15510	.02090	.58830	-.19330	-.19230	-.19450
1.955	151.860	5.80970	.11470	-2.70960	.02560	.12540	.01410	.58180	-.21080	-.20180	-.20220
1.955	149.720	6.59870	.46580	-2.72630	.03920	.03960	.01880	.57760	-.22950	-.20950	-.20540
1.955	147.740	7.18220	.94510	-2.66950	.05340	.06690	.01280	.57260	-.24530	-.21670	-.21220
1.955	158.320	3.70160	-.76910	-2.62450	-.03040	.02750	.01940	.60030	-.17560	-.17480	-.17900
1.955	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 162/ 0 RN/L = 6.94 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	169.010	82450	-.24550	-2.40990	-.01500	-.02310	-.01520	.60770	-.06890	-.06890	-.06880
3.480	167.060	1.16260	-.18280	-2.45160	-.01630	-.00610	-.02250	.59620	-.07010	-.07060	-.07100
3.480	165.000	1.53320	-.05550	-2.48200	-.01800	-.00810	-.01240	.58630	-.07330	-.07270	-.07370
3.480	162.950	1.93850	.05960	-2.51890	.00410	.01340	-.02180	.58090	-.07680	-.07460	-.07550
3.480	160.880	2.40900	.26330	-2.54700	.03540	-.06070	-.00760	.57450	-.07890	-.07520	-.07620
3.480	158.810	2.94010	.51970	-2.58300	.02300	-.02680	-.01660	.56890	-.08240	-.07630	-.07730
3.480	156.720	3.47250	.81630	-2.61300	.03470	-.01570	.01150	.56420	-.08410	-.07600	-.07720
3.480	154.670	4.03670	1.03930	-2.65340	.03100	.00990	.00800	.56240	-.08520	-.07430	-.07520
3.480	152.540	4.63530	1.16940	-2.67460	.05340	.00190	.02200	.56280	-.08520	-.06990	-.07050
3.480	150.450	5.21400	1.19710	-2.67380	.05190	.03690	.00780	.56460	-.09000	-.06320	-.06430
3.480	148.510	5.78140	1.32100	-2.64740	.05810	.03510	.00660	.56470	-.09290	-.05280	-.05370
3.480	158.810	2.95620	.48090	-2.57400	.02520	-.10420	.01160	.57010	-.08330	-.07070	-.07250
3.480	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ORIGINAL PAGE 2  
OF FOUR



MSFC TWT604 (SABF) SRB CLEAN W/RINGS

## REFERENCE DATA

SREF =	.5030	SQ. IN.	YMRP =	5.7210	IN. YS
LREF =	.8000	IN.	YMRP =	.0000	IN. YS
BREF =	.8000	IN.	ZMRP =	.0000	IN. ZS
SCALE =	.0055				

RUN NO.	163/ 0	RN/L =	6.76	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

ROUGH NO. 164/ 0 RN/L = 5.54 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	YM	CYMI	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	169.090	60940	-1.14080	-2.29350	-0.3380	-1.14180	-0.0370	.60220	-	0.3470	-0.3350
4.450	167.170	89730	-0.05190	-2.34610	-0.0260	-0.09460	-0.1710	.58810	-	0.3650	-0.3410
4.450	165.120	1.27350	.05020	-2.37410	-0.0090	-0.02350	-0.1570	.57760	-	0.3750	-0.3650
4.450	163.110	1.62060	.29360	-2.42810	-0.0110	-0.0880	-.02100	.56860	-	0.3770	-0.3670
4.450	161.080	2.08170	.59030	-2.46060	-0.0150	-0.09720	0.2660	.56020	-	0.4570	-0.3650
4.450	159.050	2.54460	.81930	-2.49440	-0.00540	-0.02620	0.3720	.55710	-	0.4200	-0.3550
4.450	157.010	3.01410	.97960	-2.55560	.04880	-0.05050	-.02160	.55690	-	0.4180	-0.3370
4.450	154.970	3.56280	1.14930	-2.58340	0.6230	-0.1810	0.3000	.55710	-	0.4120	-0.2680
4.450	152.880	4.14230	1.21990	-2.61280	0.7570	-0.1850	0.3130	.55930	-	0.3950	-0.2670
4.450	150.860	4.66420	1.31390	-2.60530	.09000	-0.17140	0.4130	.56040	-	0.3650	-0.0880
4.450	148.930	5.27040	1.42610	-2.58920	.07180	-0.0820	0.0600	.56130	-	0.3290	00.430
4.450	159.040	2.55400	.75490	-2.49390	0.9540	0.4610	.00530	.55930	-	0.3650	-0.2050
GRADIENT		00000	00000	00000	00000	.00000	00000	.00000	-	00000	00000

(R1H019) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ. IN.	XMAP =	5.7210 IN. XS
LRFF =	8000 IN.	YMAP =	.0000 IN. YS
BRFF =	8000 IN.	ZMAP =	.0000 IN. ZS
SCALE =	0055		

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

### PARAMETRIC DATA

RAIN NO	128/ 0	RN/L =	5.20	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 127/ 0 RN/L = 4 28 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.499	189 530	- 57840	1.45060	-1.40090	.05510	-.05030	-.00310	.78800	.06600	.07800	.07320
.499	187 620	- 44110	1.18550	-1.30210	.05710	-.00990	-.04710	.80260	.07940	.09510	.09150
.499	185 580	- 33710	.94740	-1.18030	.06150	-.07250	-.01600	.93660	.09250	.10500	.09840
.499	183 590	- 30250	.70290	-1.09730	.05480	-.07360	-.03740	.77290	.09750	.10950	.09870
.499	181 600	- 17130	.34630	-1.02180	.00030	-.08770	-.00790	.74830	.09770	.09890	.09890
.499	179 550	.00640	-.08120	-1.03830	.05540	.00370	-.04080	1.60920	.09510	.09390	.10230
.499	177 530	.14420	-.47070	-1.07440	.07640	.02720	-.02050	.84960	.10390	.10440	.11160
.499	175 520	.21140	-.75040	-1.13230	.06360	.00160	-.02760	.87290	.09840	.10080	.10910
.499	173 470	.28320	-1.03720	-1.22820	.08640	-.05710	-.00070	.88210	.09310	.10270	.10630
.499	171 470	.41980	-1.25930	-1.34360	.08790	-.00280	-.01710	.82810	.07500	.08690	.08930
.499	169 580	.54740	-1.43910	-1.43260	.02210	-.01200	.00000	.79780	.06620	.07690	.08500
.499	179 560	- 09960	-.05940	-1.02080	.00360	-.00600	-.03610	.53470	.10030	.10380	.10500
GRADIENT	.00000	.00000	.00000	.00000	.00000	-.00000	.00000	.00000	.00000	.00000	.00000

MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(R1H019) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ. IN.	XMAP =	5.7210 IN. XS
LREF =	8000 IN.	YMAP =	.0000 IN. YS
BREF =	8000 IN.	ZMAP =	.0000 IN. ZS
SCALE =	.0055		

### PARAMETRIC DATA

BETA	=	000	PHI	=	.000
NOZZLE	=	000			

RUN NO. 126/ 0 RN/L = 1.92 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 129/ 0 RN/L • 6.19 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

UNCLASSIFIED SOURCE DATA. MSFC TWT 604. SA-8F

DATE 10 JUL 75

(R1H019) ( 10 JUL 75 )

MSFC TW1604 (SABF) SRB CLEAN W/RINOS

### PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

XSREF	•	5030 SQ IN.	•	XPBP	•	5.7210 IN. XS
REF	•	8000 IN.	•	YPBP	•	.0000 IN. YS
BREF	•	8000 IN.	•	ZBPB	•	.0000 IN. ZS
SCALE	•	.0055				

CONFIDENTIAL • 5030 SQ IN. XHOP • 5.7210 IN. XS

REF	8000 IN.	YRPF	8000 IN. YS
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BREF = 8000 I  
SCALE = .0055

## REFERENCE DATA

RUN NO. 130/ 0    RN/L = 6 59    GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	111	0	PM/L	=	7.06	GRADIENT INTERVAL	=	-5	30/	5	00
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MACH	ALPHA	CNN1	CLNN	CA	CYM	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
1 954	189 700	- 67220	1 15270	-2 42290	- 00880	0 1260	- 01680	72330	- 08570	- 08800	- 08430
1 954	187 740	- 47560	.95410	-2 33760	0 1860	.03020	- 00700	74700	- 07070	- 07140	- 06840
1 954	185 680	- 34430	.82580	-2 27860	0 0990	0 5430	0 0080	77900	- 06070	- 05510	- 05540
1 954	183 630	- 17180	.51120	-2 26170	- 0190	0 3620	- 00240	82610	- 05180	- 04730	- 04810
1 954	181 600	- 06160	.20230	-2 22160	0 2360	0 3340	- 00080	85110	- 04610	- 04580	- 04640
1 954	179 520	08940	- 115090	-2 23200	0 2730	0 6450	- 00100	72100	- 04410	- 04450	- 04530
1 954	177 480	17370	.46610	-2 24080	0 0460	0 5220	.01320	80220	- 04270	- 04270	- 04270
1 954	175 420	32610	- 79650	-2 24850	0 0890	0 5070	0 6730	.78260	- 04820	- 04750	- 04840
1 954	173 330	47710	- 97310	-2 35500	0 3830	0 4780	0 0930	.74980	- 08560	- 08110	- 08820
1 954	171 290	66010	- 113530	-2 42630	.05160	.03510	.00640	.72370	- 10010	- 03750	- 08120
1 954	169 320	94150	- 1 33850	-2 45610	0 4350	0 3670	- 01000	69940	- 11630	- 11440	- 12440
1 954	179 440	09990	- 22150	-2 18820	0 0250	.00720	0 0290	76420	- 06120	- 05930	- 05800
GRAND TOTAL	00000	00000	00000	00000	00000	00000	00000	00000	- 00000	00000	00000

## REFERENCE DATA

SREF	5030	50. IN.	YMPP	5.7210	IN. X5
LMCF	8000	IN.	YMPP	.0000	IN. Y5
GRCF	8000	IN.	ZMPP	.0000	IN. Z5
SCALE	0095				

### PARAMETRIC DATA

BEYA	-	.000	CHI	-	.000
NOZZLE	-	.000			

RUN NO 158/ 0 RN/L = 5.08 GRADIENT INTERVAL = -5 00/ 5.00

[illegible]

RUN P.O. 167/ 0 RN/L = 6 95 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS

(RIH019) (10 JUL 75)

## REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

## PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 165/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.000	189 530	49910	.15450	-2.36220	-.00560	-.01060	-.00740	.60860	-.04440	-.04520	-.04410
4.000	187 620	39920	.24620	-2.31650	-.00690	-.01120	-.01390	.63370	-.04240	-.04210	-.04190
4.000	185 580	24020	.25110	-2.27640	-.01770	.00980	-.02170	.66870	-.03850	-.03830	-.03880
4.000	183 580	15810	.21550	-2.24030	.00430	-.05880	-.00990	.69460	-.03560	-.03510	-.03540
4.000	181 560	00120	.09850	-2.20930	-.00540	-.01390	-.02600	-5.90730	-.03360	-.03330	-.03370
4.000	179 550	02140	-.06860	-2.19840	.00640	-.01010	.01910	.84400	-.03360	-.03390	-.03330
4.000	177 510	10150	-.17650	-2.22010	-.00250	-.00980	-.01440	.72530	-.03490	-.03490	-.03400
4.000	175 520	18190	-.28530	-2.25820	-.00040	-.01510	-.01190	.71130	-.03740	-.03780	-.03620
4.000	173 460	32190	-.33290	-2.29970	-.00010	-.00330	-.00650	.66770	-.04100	-.04140	-.04030
4.000	171 460	50150	-.12980	-2.33030	-.00150	-.05350	-.00270	.60450	-.04490	-.04580	-.04420
4.000	169 550	74260	-.13320	-2.36620	.00740	-.00560	-.02750	.59800	-.04800	-.04860	-.04680
4.000	179 540	06070	-.11090	-2.20490	-.00300	-.01250	.02010	.73240	-.03460	-.03460	-.03510
4.000	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO 165/ 0 RN/L = 5.54 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	189 510	455010	.07680	-2.23400	-.02370	-.01480	-.03340	.59480	-.03300	-.03470	-.03160
4.450	187 600	40420	.13780	-2.20540	-.00900	-.06440	-.01130	.61120	-.03130	-.03290	-.03060
4.450	185 560	26080	.19970	-2.18680	-.01020	-.06300	.03590	.64590	-.02940	-.03040	-.02900
4.450	183 570	17260	.14580	-2.17820	-.01040	-.01390	-.03450	.65230	-.02840	-.02920	-.02800
4.450	181 580	11560	-.05700	-2.15140	-.02230	-.01730	-.03250	.54310	-.02760	-.02860	-.02720
4.450	179 550	00180	-.14360	-2.12620	-.00510	-.08520	-.02700	6.93340	-.02760	-.02840	-.02690
4.450	177 520	08950	-.16050	-2.15200	.00770	-.01240	-.02520	.72970	-.02760	-.02760	-.02460
4.450	175 530	14520	-.32760	-2.17960	-.01970	.01560	-.03490	.76740	-.02760	-.02920	-.02760
4.450	173 480	26230	-.34180	-2.22970	-.00450	.00000	-.03460	.68970	-.03000	-.03100	-.02880
4.450	171 490	43620	-.27730	-2.25270	.01160	-.11800	.04090	.63520	-.03270	-.03390	-.03100
4.450	169 570	66590	-.19800	-2.28990	-.02080	-.00610	-.04330	.60760	-.03550	-.03690	-.03390
4.450	179 550	03060	-.20720	-2.14440	-.02600	-.01540	-.03320	1.13500	-.03130	-.03130	-.02980
4.450	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

TERMINATED SOURCE DATA. MSFC INT 604. SA-BF

(R1H030) (10 JUL 75)

MSFC TWT604 (SABF) 508 CLEAN W/RINGS W/O N CAP

REFERENCE DATA

SCALE =	0055			
BASEF =	8000 IN.	ZHBP		0000 IN. Z5
BASEF =	8000 IN.			
BASEF =	8000 IN.	YHBP		0000 IN. Y5
BASEF =	8000 IN.			
BASEF =	8000 IN.	XHBP		0000 IN. X5

PARAMETRIC DATA

BEYA	PHI	030
000	000	000
000	000	000

DATE	TIME	RN/I	GRADIENT INTERVAL	-5 00/	5 00
269	0	5 28			

MACH	ALPHA	CHM	CLMM	CA	CYM	CYM	CBL	XCP/L	CBP1	CBP2	CBP3
398	70 320	10 55750	13 49030	- 02990	1 13950	6 92420	- 04000	47910	00000	00000	00000
398	72 230	10 71330	14 12990	- 07460	1 17540	6 86720	- 02560	47580	00000	00000	00000
398	74 240	10 94210	13 87680	- 13260	1 11960	6 96160	- 01660	47990	00000	00000	00000
398	76 200	10 93470	12 62340	- 05800	- 11950	55220	- 03180	48920	00000	00000	00000
398	78 200	10 94870	12 46330	- 02120	- 04710	62720	- 03460	49070	00000	00000	00000
398	80 200	11 07300	12 31960	- 01950	- 04710	1 02700	- 03660	49260	00000	00000	00000
398	82 210	10 90520	11 66550	05050	24020	92450	- 01530	49610	00000	00000	00000
398	84 200	11 07740	10 76070	11740	42390	92730	- 02490	50410	00000	00000	00000
398	86 200	11 33500	9 50960	12990	17750	14237	- 01010	51490	00000	00000	00000
398	88 160	11 07160	6 72670	43920	3020	1 18600	- 01340	53380	00000	00000	00000
398	90 010	11 06370	5 81820	43350	- 20720	- 14830	- 02330	54030	00000	00000	00000
398	80 200	11 02650	12 31170	- 02460	08790	1 16580	- 01550	54230	00000	00000	00000
CRASHFAT		00000	00000	00000	00000	00000	00000	0000	00000	00000	00000

RUN NO. 269/0 RM/L 4 35 GRADIENT INTERVAL -5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
498	70 3+0	11 75010	15 66510	- 193+0	-	59350	- 00510	47460	00000		00000
498	70 2+0	11 91730	15 32690	- 15280	- 36230	53610	- 00610	47840	00000	00000	00000
498	76 2+0	11 98290	14 31690	- 07560	- 25730	24920	01950	48170	00000	00000	00000
498	76 2+0	11 94+20	14 29760	045+0	- 11680	17390	04500	44570	00000	00000	00000
498	76 2+0	12 01+20	13 84930	08120	- 19310	52450	00710	49350	00000	00000	01100
498	60 2+0	12 08110	14 03970	00600	- 19200	39750	037+0	44240	00000	00000	00000
498	60 2+0	12 08110	13 08350	04+20	- 25690	06+80	01650	433+0	00000	00000	00000
498	84 180	11 863+0	11 26970	22+80	- 11520	41650	01170	52450	00000	00000	00000
498	86 180	11 84120	10 28090	34020	- 04860	- 10250	00340	51390	00000	00000	00000
498	86 180	12 09150	10 28090	41260	- 14500	18490	00830	53110	00000	00000	00000
498	90 0+0	12 08680	6+460	50+50	- 10720	79290	03120	53400	00000	00000	00000
498	80 2+0	11 56330	13 83+10	- 00+90	- 17180	463+0	- 00670	463+0	00000	00000	00000
498	80 2+0	11 56330	13 83+10	- 00+90	- 17180	463+0	- 00670	463+0	00000	00000	00000
GRADIENT		00000	00000		00000	00000					

TABULATED SOURCE DATA, MSFC INT 604, SA-BF

(RIN-22), ( 10 JUL 75 )

MSFC INT-004 (SABF) SRB CLEAN W/RINGS W/O N CAP

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN. XS  
 LREF = 8000 IN YMRP = .0000 IN. YS  
 BREF = 8000 IN ZMRP = .0000 IN. ZS  
 SCALE = 0055

PARAMETRIC DATA

BETA = .000 PHI = .000  
 NOZZLE = .000

RUN NO. 270/ 0 RIN/L = 5 04 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CMH	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
601	70 400	12 47920	16 41710	-116180	-14600	.28460	.00260	47600	.00000	.00000	.00000
601	72 310	12 64320	15 83090	-113090	-128290	.42860	- .00100	48120	.00000	.00000	.00000
601	74 300	12 61600	15 51300	.00510	-128030	.91180	.01980	48310	.00000	.00000	.00000
601	76 280	12 61650	15 43880	0 20	-119170	.91620	.02370	48350	.00000	.00000	.00000
601	78 270	12 64830	15 11760	04420	-25220	.29650	.00200	48590	.00000	.00000	.00000
601	80 210	12 41160	12 86380	.17930	-31370	.30210	.02820	49680	.00000	.00000	.00000
601	82 230	12 32120	1 60960	30820	-31190	.30850	.02490	50650	.00000	.00000	.00000
601	84 210	12 32430	10 7490	42490	-108750	-113010	.02730	51250	.00000	.00000	.00000
601	86 210	12 42220	9 6 50	48300	-105270	-130070	.03540	51980	.00000	.00000	.00000
601	88 180	12 73430	8 35200	63120	-115350	.32150	- .00800	52990	.00000	.00000	.00000
601	90 030	12 76550	6 87380	61290	-118990	.59240	.00340	53940	.00000	.00000	.00000
601	80 250	12 41820	12 85620	17620	-37100	.45720	.01040	49890	.00000	.00000	.00000
601	GRADIENT	00000	.00000	00000	.00000	00000	.00000	.00000	.00000	.00000	.00000



MSFC TWT604 (SABF) SR8 CLEAN W/RINGS W/O N.CAP

(R1H021) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP	=	5.7210 IN.	X5
LREF	=	.9000 IN.	YMRP	=	.0000 IN.	VS
BREF	=	.8000 IN.	ZMRP	=	.0000 IN.	Z5
SCALE	=	0055				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO. 247/ 0 RN/L = 5.29 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 248/ 0 RN/L = 4.38 GRADIENT INTERV. = 5.00/ 5.00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TNT 604, SA-9F

(R1H021) ( 10 JUL 75 )

MSFC TWT604 (SABF) SR8 CLEAN W/RINGS W/O N.CAP

## REFERENCE DATA

SRCF	=	.5030	SQ. IN.	XNRP	=	5.7210	IN. XS
LREF	=	.8000	IN.	YNRP	=	.0000	IN. YS
BRCF	=	.8000	IN.	ZNRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

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RUN NO. 249/ 0  RN/L = 5.00  GRADIENT INTERVAL = -5.00/ 5.00

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[illegible]

MSFC TWT604 (SABF) SRB CLEAN W/RINGS W/O N.CAP

## PARAMETRIC DATA

BETA	.000	PHI	.000
NOZZLE	.000		

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. XS
LREF	=	.8700	IN.	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	0035					

Run No	Run/1	Run/1	Gradient	Interval	Interval
246/0	5	35	-5.00/	5.00	

MACH	ALPHA	CNM	CLNM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.404	129.570	5.26850	-5.07030	-1.74590	.68420	-.00670	.06610	.66190	.00000	.00000	.00000
.404	127.670	5.78630	-4.77740	-1.65080	.118280	.49170	.04390	1.5070	.00000	.00000	.00000
.404	125.650	6.55830	-4.45410	-1.59460	1.99200	.44460	.04170	6.3880	.00000	.00000	.00000
.404	123.680	7.19510	-4.59490	-1.50630	2.09130	.00440	.01020	6.1550	.00000	.00000	.00000
.404	121.640	7.67490	-5.04440	-1.36990	1.00630	.13690	-.01450	6.3700	.00000	.00000	.00000
.404	119.620	8.04120	-5.67380	-1.25750	.25560	.22190	-.02350	6.3699	.00000	.00000	.00000
.404	117.610	9.38060	-6.05990	-1.11590	-.59920	-.55180	.06910	6.3610	.00000	.00000	.00000
.404	115.610	9.58250	-5.39970	-.99250	-.92340	1.12710	.00970	6.3930	.00000	.00000	.00000
.404	113.600	9.95650	-4.63990	-.86800	-1.27360	1.51560	.00440	6.2160	.00000	.00000	.00000
.404	111.590	10.11030	-3.55370	-.73950	-1.67130	1.86090	-.01120	6.1220	.00000	.00000	.00000
.404	109.750	10.28200	-2.51940	-.57250	-1.74530	2.18530	.02060	6.0340	.00000	.00000	.00000
.404	119.620	8.60180	-5.86020	-1.23140	.22490	.15360	.01850	6.3680	.00000	.00000	.00000
.404	117.610	9.38060	-6.05990	-.99250	-.92340	1.12710	.00970	6.3930	.00000	.00000	.00000

GRIN NO	245 / 0	RN/L =	4.35	GRADIENT INTERVAL =	-5.00 / 5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA: MSFC TWT 604, SA-8F

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MSFC TWT604 (SA8F) SR8 CLEAN W/RINGS W/O N CAP

(R1H022) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5.030 SQ. IN.	XMRP	=	5.7210 IN. XS
LREF	=	9000 IN	YMRP	=	.0000 IN. YS
BREF	=	.8000 IN.	ZMRP	=	.0000 IN. ZS
SCALE	=	.0055			

BETA " "

NOZZLE " "

144 - 0000

### PARAMETRIC DATA

RUN NO.	244/ C	EN/L =	5.03	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

PAGE 6C

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

(R14023) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = .000  
 NOZZLE = .000

RUN NO. 197/ 0 RN/L = 7.06 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	-9.530	-1.34960	-1.93730	.88560	-.06230	.17340	-.01120	.46630	-07020	-08800	-08750
3.480	-7.650	-.98240	-1.56800	.84040	-.02580	.03390	-.03520	.45320	-06680	-08620	-08690
3.480	-5.590	-.66830	-1.06680	.82440	.07650	.11270	-.01840	.45320	-06210	-08350	-08490
3.480	-3.550	-.43200	-.49600	.80680	-.03500	-.08740	-.02590	.48970	-06590	-08230	-08370
3.480	-1.500	-.22550	.07310	.81330	.00780	-.08630	-.00750	.60980	-06100	-08140	-08210
3.480	.550	.01650	.37250	.79850	.00700	-.09830	-.00870	-1.24740	-05480	-08130	-08000
3.480	2.600	.24270	.65940	.79470	.00580	-.12110	-.00020	.36180	-05440	-08470	-08090
3.480	4.640	.43680	1.13390	.77970	-.00560	-.10190	-.02430	.36040	-05750	-08330	-08150
3.480	6.730	.7470	1.78500	.81030	-.01640	-.08340	-.04280	.39780	-06010	-08400	-08170
3.480	8.820	1.11830	2.38630	.83870	-.05770	-.05020	-.05480	.46930	-06710	-08540	-08400
3.480	10.750	1.55510	2.70480	.84280	-.08640	-.06680	-.05480	.44150	-07070	-08650	-08470
3.480	550	.01590	.37160	.79720	.00720	-.09690	-.04490	-1.31240	-04540	-08620	-08420
GRADIENT		10771	19365	-.00355	.00278	-.00312	.07052	-.02482	.00139	-08029	-08113

RUN NO. 196/ 0 RN/L = 5.65 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	-9.500	-1.38970	-1.36860	.71470	.00040	.13060	-.03310	.50300	-04260	-04920	-04760
4.450	-7.550	-1.04210	-1.11290	.66930	.01430	.06700	.01570	.49630	-04360	-04950	-04560
4.450	-5.520	-.72410	-.81440	.62950	.01520	.08370	.01710	.49160	-04160	-04330	-04520
4.450	-3.520	-.51350	-.35820	.63510	-.00530	-.05790	-.00300	.52710	-04120	-04340	-04440
4.450	-1.470	-.29070	.11860	.53530	.03310	-.10070	.00490	.61670	-03950	-04780	-04480
4.450	.540	-.00180	.28810	.61400	.03400	-.13660	-.00740	.44140	-03690	-04760	-04460
4.450	2.580	.40460	.66040	.61150	.01970	-.16830	.00150	.45020	-03650	-04990	-04600
4.450	4.590	.43460	.93070	.61840	.00400	-.11040	-.01040	.40870	-03890	-05030	-04680
4.450	6.540	.78150	1.35350	.61480	-.00610	.07440	-.02360	.44210	-04080	-05450	-04620
4.450	8.670	1.07670	1.53130	.62850	-.06350	.04220	.01440	.45980	-04220	-05430	-04620
4.450	10.540	1.45350	1.83620	.66320	-.09340	.00420	-.05000	.48030	-04490	-05440	-04800
4.450	550	.02710	.38140	.62730	.03410	-.10120	-.03440	.56630	-04600	-05050	-04800
GRADIENT		12848	15395	-.07282	.00027	-.01852	-.00089	-.02112	.07028	-05029	-04907



DATE 10 JUL 75

TABLATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTRUBANCES

RTH025) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5 7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = .000

RUN NO. 183/ 0 RN/L = 6 69 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	31.890	7.41530	5.35350	1.23210	-1.7590	.05110	-.02860	52450	-.07820	-.07940	-.07580
3.480	33.880	8.09090	5.83260	1.27400	-1.19690	.04050	-.03500	52460	-.07820	-.07610	-.07310
3.480	35.980	8.78330	6.20690	1.29620	-.23240	.01820	-.02920	52570	-.07770	-.07200	-.07200
3.480	38.070	9.52550	6.64170	1.33440	-.25160	.01940	-.04480	52650	-.07870	-.06720	-.07020
3.480	40.160	10.22040	6.89970	1.38510	-.26150	.03460	-.02940	52830	-.08250	-.06860	-.06970
3.480	42.250	10.94540	7.25870	1.43360	-.28680	.07360	-.04950	52930	-.08140	-.06240	-.07060
3.480	44.350	11.61230	7.74950	1.46260	-.30010	.07820	-.02950	52990	-.08100	-.05740	-.07510
3.480	46.450	12.28070	8.38030	1.44930	-.33170	.04020	-.05310	52770	-.07470	-.05100	-.07620
3.490	4.570	12.90150	9.09310	1.41520	-.35660	.00560	-.04630	52590	-.07470	-.05730	-.07570
3.490	50.660	13.47280	9.80190	1.38500	-.37380	.00160	-.04290	52400	-.07120	-.06650	-.07410
3.480	52.630	14.01820	10.46830	1.34940	-.41360	.03190	-.06070	52400	-.07430	-.05460	-.07600
3.480	42.250	10.95110	7.26350	1.42900	-.29580	.03630	-.03030	52930	-.04040	-.06240	-.07130
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 182/ 0 RN/L = 5 14 GRADIENT INTERVAL = 5.00/ 5.00

MACH	ALPHA	CNH	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	31.360	6.83600	3.84460	1.17140	-.14570	-.04920	-.00010	53750	-.04300	-.03470	-.03890
4.450	33.300	7.44610	4.13430	1.22240	-.15450	-.00500	-.00230	53810	-.04380	-.03160	-.04870
4.450	35.350	8.13970	4.49560	1.26470	-.17880	-.02900	.00130	53830	-.04420	-.02860	-.03610
4.450	37.400	8.83350	4.74930	1.32150	-.18550	.03370	-.06810	53950	-.04480	-.02540	-.03850
4.450	39.430	9.50160	5.12490	1.38850	-.21190	-.04530	.01830	53940	-.04770	-.02380	-.03750
4.450	41.500	10.25930	5.28850	1.45750	-.23090	-.12800	-.01070	54130	-.04700	-.04300	-.03910
4.450	43.550	10.89290	6.02690	1.45650	-.26290	-.10870	-.03270	53820	-.04890	-.07160	-.04000
4.450	45.600	11.44460	6.72740	1.43860	-.27710	-.03790	.01450	53540	-.04740	-.07820	-.03910
4.450	47.680	12.02540	7.38770	1.40870	-.30730	-.10000	-.01450	53330	-.04320	-.04500	-.03710
4.450	49.730	12.63340	8.11540	1.35220	-.30930	-.10610	-.00550	53110	-.04570	-.01760	-.03450
4.450	51.660	13.12780	8.79690	1.30330	-.33940	-.13330	-.01270	52810	-.04090	-.00480	-.03440
4.450	41.490	10.22730	5.25420	1.45730	-.24830	-.11230	.01220	54140	-.04040	-.02110	-.03910
GRADIENT		00000	00000	00000	00000	.00000	00000	00000	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

(R1H028) ( 10 JUL 75 )

MSFC TWI604 (SABF) SRB WITH ALL PROTUBERANCES

## REFERENCE DATA

SREF	=	.5030	SQ	IN.	XMRP	=	5.7210	IN.	XS
LREF	=	8000	IN.		YMRP	=	.0000	IN.	YS
BREF	=	8000	IN.		ZMRP	=	.0000	IN.	ZS
SCALE	=	.0055							

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

### PARAMETRIC DATA

RUN NO. 383/ 0 RM/L = 5.43 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNN	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
401	70 370	12 38960	18 75610	- 07380	- 6 14850	- 4 24390	- 05870	.45990	.00000	.00000	.00000
401	72 250	12 10540	17 61520	- 00030	- 4 97820	- 3 58810	- 09600	.46470	.00000	.00000	.00000
401	74 250	12 17920	17 27000	- 00810	- 4 50590	- 4 85380	- 06360	.00000	.00000	.00000	.00000
401	76 250	12 45860	17 15200	06200	- 4 29840	- 3 63200	- 05970	.47110	.00000	.00000	.00000
401	78 240	12 62550	16 87820	04460	- 3 90300	- 1 88560	- 03860	.47430	.00000	.00000	.00000
401	80 250	12 58030	16 32510	05110	- 3 42820	- 66220	- 03220	.47750	.00000	.00000	.00000
401	82 240	12 33040	15 59770	.11720	- 3 07010	.17030	- 03860	.48020	.00000	.00000	.00000
401	84 210	12 05590	13 16100	.41440	- 3 03350	.05420	- 03740	.49430	.00000	.00000	.00000
401	86 150	12 15330	9 87430	.70140	- 3 00550	.78470	- 08460	.51710	.00000	.00000	.00000
401	88 150	12 26220	8 82610	.66980	- 3 18080	.47910	- 1 0280	.52460	.00000	.00000	.00000
401	90 030	12 18770	7 86330	.57000	- 3 18590	.02690	- 04320	.53070	.00000	.00000	.00000
401	80 250	12 36680	16 00360	04380	- 3 46020	- 56030	- 02400	.47780	.00000	.00000	.00000
CRADENT								.00000	.00000	.00000	.00000

RUN NO	382/ 0	RN/L =	5 10	GRADIENT INTERVAL =	-5 00/	5 00
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[illegible]



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 604, SA-BF

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MSFC THT604 (5ABF) SRB WITH ALL PROTUBERANCES

(RIH026) (10 JUL 75)

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5 7210 IN. X5  
LREF = 8000 IN. YMRP = .0000 IN. Y5  
BREF = 8000 IN. ZMRP = .0300 IN. Z5  
SCALE = 0055

BETA = .000 PHI = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 381/ 0 RN/L = 6 47 GRADIENT INTERVAL = 5 00/ 5.00

MACH	ALPHA	CNM	CLPM	CA	CYM	CYMH	CR	XCP/L	CBP1	CBP2	CBP3
899	70.680	15.26920	20.46070	.48110	-1.62430	-1.82550	-0.7690	.47410	.00000	.00000	.00000
899	72.550	15.40010	19.58030	.54270	-1.65990	-1.77530	-1.08780	.47960	.00000	.00000	.00000
899	74.520	15.61410	18.72940	.57300	-1.63510	-1.95530	-0.9380	.48550	.00000	.00000	.00000
899	76.490	15.75340	17.70070	.57370	-1.63390	-1.95160	-0.8870	.49170	.00000	.00000	.00000
899	78.460	15.95510	16.69070	.59460	-1.66260	-1.87360	-0.7680	.49600	.00000	.00000	.00000
899	80.440	16.12050	15.66300	.60580	-1.70190	-1.86980	-0.8580	.50410	.00000	.00000	.00000
899	82.420	16.24410	14.41770	.60620	-1.73810	-1.78500	-0.9560	.51100	.00000	.00000	.00000
899	84.400	16.47230	13.23830	.60200	-1.76780	-1.72680	-1.08200	.51780	.00000	.00000	.00000
899	86.380	16.86640	11.64780	.73990	-1.78440	-1.64220	-1.07930	.52700	.00000	.00000	.00000
899	88.360	16.95030	10.41150	.77800	-1.79980	-1.59000	-0.9640	.53330	.00000	.00000	.00000
899	90.340	17.05570	9.43110	.74900	-1.81960	-1.49920	-1.0410	.57810	.00000	.00000	.00000
899	80.410	16.48560	15.42650	.62100	-1.74430	-1.84330	-0.9230	.4100	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	.000	.00000	.00000	.00000

RUN NO. 384/ 0 RN/L = 6.90 GRADIENT INTERVAL = 5 00/ 5.00

MACH	ALPHA	CNM	CLPM	CA	CYM	CYMH	CR	XCP/L	CBP1	CBP2	CBP3
1.198	70.670	19.44480	18.07400	.82340	-1.77100	-3.7140	-2.1960	.51750	.00000	.00000	.00000
1.198	72.550	19.60100	17.79730	.80410	-1.80350	-3.3340	-2.1870	.50370	.00000	.00000	.00000
1.198	74.540	19.74360	17.43850	.76930	-1.81420	-3.3960	-2.1730	.51150	.00000	.00000	.00000
1.198	76.540	19.93030	17.12780	.74530	-1.82100	-3.1910	-2.1340	.51330	.00000	.00000	.00000
1.198	78.510	20.09420	16.41630	.83960	-1.81250	-3.4450	-2.1040	.51670	.00000	.00000	.00000
1.198	80.500	20.37460	16.24390	.77050	-1.77460	-3.84270	-2.2260	.51830	.00000	.00000	.00000
1.198	82.470	20.49820	15.56620	.82560	-1.78070	-3.85360	-2.1830	.52140	.00000	.00000	.00000
1.198	84.440	20.61040	14.84450	.67780	-1.81180	-3.79620	-2.0830	.52460	.00000	.00000	.00000
1.198	86.410	20.59750	14.08460	.60810	-1.81640	-3.62640	-2.0630	.52760	.00000	.00000	.00000
1.198	88.420	20.69190	13.74150	.52150	-1.83320	-3.85230	-1.9530	.52920	.00000	.00000	.00000
1.198	90.270	20.60220	13.15640	.43650	-1.81670	-3.83710	-2.1010	.53130	.00000	.00000	.00000
1.198	80.500	20.29130	16.16150	.77510	-1.77390	-3.82980	-2.1000	.51840	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	.00000	.00000	.00000	.00000

(R140261) (10 JUL 75)

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5 7210 IN XS BETA = .000  
 LREF = 8000 IN YMRP = 0000 IN YS NOZZLE = .000  
 BREF = 8000 IN ZMRP = .0000 IN. ZS  
 SCALE = C055

RUN NO. 385/ 0 RN/L = 7 25 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CMH	CLMH	CA	CYH	CYMH	CBH	XCP/L	CBP1	CBP2	CBP3
1.964	70 580	18 83380	14 65500	1 07880	- 80390	- 29460	- 18730	51980	00000	00000	00000
1.964	72 460	19 24700	14 86430	1 02120	- 83450	- 23690	- 18920	52040	00000	00000	00000
1.964	74 500	19 51120	14 76800	96080	- 85000	- 18990	- 20210	52160	00000	00000	00000
1.964	76 460	19 74710	14 63880	89540	- 83990	- 17620	- 18770	52290	00000	00000	00000
1.964	78 480	19 90600	14 52430	- 83360	- 85010	- 10620	- 15640	52410	00000	00000	00000
1.964	80 470	20 13640	14 29670	76030	- 84990	- 05950	- 20170	52540	00000	00000	00000
1.964	82 460	20 23940	14 06030	69910	- 82550	- 05410	- 19460	52670	00000	00000	00000
1.964	84 440	20 29910	13 80730	61750	- 83610	- 02780	- 20850	52790	00000	00000	00000
1.964	86 430	20 36470	13 52070	54360	- 82040	- 06470	- 19370	52920	00000	00000	00000
1.964	88 410	20 33030	13 15610	46170	- 81900	- 10660	- 19790	53060	00000	00000	00000
1.964	90 390	20 32840	12 96770	38240	- 81410	- 11700	- 19100	53140	00000	00000	00000
1.964	92 370	20 06690	14 25170	75840	- 83000	- 06180	- 20460	52540	00000	00000	00000
1.964	94 350	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 386/ 0 RN/L = 5 33 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CMH	CLMH	CA	CYH	CYMH	CBH	XCP/L	CBP1	CBP2	CBP3
2.740	70 420	18 26740	13 92900	1 11720	- 66930	- 06870	- 17940	52120	00000	00000	00000
2.740	72 340	18 53970	14 05550	1 06460	- 66540	- 04730	- 14800	52170	00000	00000	00000
2.740	74 340	18 94130	14 17320	1 00530	- 67120	- 07400	- 15370	52230	00000	00000	00000
2.740	76 320	19 21110	14 11800	93930	- 67610	- 11400	- 07540	52340	00000	00000	00000
2.740	78 310	19 43470	14 00300	87820	- 68320	- 13130	- 14720	52460	00000	00000	00000
2.740	80 300	19 62540	13 84400	80750	- 68600	- 19210	- 14610	52580	00000	00000	00000
2.740	82 320	19 76150	13 74000	70630	- 69110	- 20560	- 16260	52670	00000	00000	00000
2.740	84 300	19 89610	13 57260	64180	- 69680	- 24160	- 15820	52770	00000	00000	00000
2.740	86 290	20 00640	13 46140	55980	- 69560	- 26360	- 16680	52850	00000	00000	00000
2.740	88 310	20 04270	13 27740	48190	- 68200	- 23890	- 15880	52930	00000	00000	00000
2.740	90 330	20 03370	12 98180	39910	- 67060	- 28180	- 15240	53050	00000	00000	00000
2.740	92 300	19 60190	13 62750	90710	- 68480	- 14740	- 17360	52580	00000	00000	00000
2.740	94 280	00000	00000	00000	00000	- 00000	- 00000	00000	00000	00000	00000

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DATE IC JL 75

TABLED SOURCE DATA, MSFC INT 604, SA-8F

PAGE 06

MSFC TMI604 (SABF) SRB WITH ALL PROTUBERANCES

(R14026) ( 10 JUL 75 )

### REFERENCE DATA

AREA	=	5030	SQ IN	WAPP	=	5	7210	IN	XS
WLS	=	6000	IN	WAPP	=	0500	IN	FS	
LSL	=	8000	IN	ZAPP	=	0000	IN	ZS	
SCALE	=	0055							

## PARAMETRIC DATA

BETA - 000 PHI - 000  
NOZZLE - 000

RUN NO	387	0	RN'L	7	22	GRADIENT INTERVAL	-5	00	5	00
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[illegible]



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

PAGE 68

MSFC TWT604 (SABF) SRB WITH ALL PROTOBERANES

(RTH027) ( 10 JUL 75 )

REFERENCE DATA

YREF = 5030 SQ IN XMRP = 5.7210 IN ZS  
 YREF = 4000 IN YMRP = 0000 IN YS  
 ZREF = 8000 IN ZMRP = 0000 IN ZS  
 SCALE = 0.755

BETA = 000 PHI = 000  
 NOZZLE = 000

PARAMETRIC DATA

RUN NO. 2947 0 RML/L 6 IN GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYH	CYMH	CBL	XCP L	CBP1	CBP2	CBP3
900	109 600	14 87460	-2 14270	-30790	-41610	-48640	-72030	-04910	59540	00000	00000	00000
910	107 500	4 08600	-1 60570	-14180	-37840	-72030	-93360	-04200	59210	00000	00000	00000
920	105 400	15 21220	-76480	-60230	-36810	-93360	-101300	-01390	56750	00000	00000	00000
930	103 300	15 44620	33400	14310	-37410	93500	-10900	-10900	52160	00000	00000	00000
940	101 200	15 44620	1 14730	3130	-41070	85070	14770	14770	57460	00000	00000	00000
950	99 100	16 60100	3 17240	-43530	-42980	83180	61180	61180	5440	00000	00000	00000
960	97 000	16 60100	4 8110	45400	-45140	81570	1110	1110	640	00000	00000	00000
970	94 900	16 60100	6 44400	4470	-45580	81800	12 000	-0140	640	00000	00000	00000
980	92 800	16 60100	7 12580	370	-44470	77420	77420	77420	4040	00000	00000	00000
990	90 700	16 60100	8 72270	2110	-43810	4440	4440	4440	4070	00000	00000	00000
1000	88 600	16 60100	9 87070	4000	-43300	0	0	0	4070	00000	00000	00000
1010	86 500	16 60100	3 41660	4160	-42170	2140	2140	2140	4440	00000	00000	00000
1020	84 400	16 60100	10000	4200	00 00	0000	0000	0000	4440	00000	00000	00000

RUN NO. 2957 0 RML/L 6 80 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNH	CLMH	A	CYM	CYH	CYMH	UM	XCP L	CBP1	CBP2	CBP3
1030	82 300	16 60100	7 61130	-61850	-45690	-32510	-32510	-1360	4440	00000	00000	00000
1040	80 200	16 60100	7 61130	-47130	-43000	-31970	-31970	-1210	4440	00000	00000	00000
1050	78 100	16 60100	8 47600	-42400	-40700	-27900	-27900	-1010	4440	00000	00000	00000
1060	76 000	16 60100	8 9700	10000	-40400	-24960	-24960	-1110	4440	00000	00000	00000
1070	73 900	16 60100	9 4700	-34080	-38430	-15890	-15890	-1110	4440	00000	00000	00000
1080	71 800	16 60100	9 4700	-24770	-37100	-13140	-13140	-1110	4440	00000	00000	00000
1090	69 700	16 60100	10 3330	-21400	-35800	-10400	-10400	-1110	4440	00000	00000	00000
1100	67 600	16 60100	10 40000	00000	-34500	-8200	-8200	-1110	4440	00000	00000	00000
1110	65 500	16 60100	11 14700	4000	-33200	-6000	-6000	-1110	4440	00000	00000	00000
1120	63 400	16 60100	11 93300	5600	-31900	-3700	-3700	-1110	4440	00000	00000	00000
1130	61 300	16 60100	12 74000	6400	-30600	-1400	-1400	-1110	4440	00000	00000	00000
1140	59 200	16 60100	13 58000	6400	-29300	0	0	-1110	4440	00000	00000	00000
1150	57 100	16 60100	14 44000	6400	-28000	1400	1400	-1110	4440	00000	00000	00000
1160	55 000	16 60100	15 32000	6400	-26700	2800	2800	-1110	4440	00000	00000	00000

TABULATED SOURCE DATA. MSFC INT 604. SA-38

DATE 10 JUL 75

IR:0271 1 10 JUL 75

MSFC INT604 (SAB) SRB WITH ALL PROTOXERANCES

PARAMETRIC DATA

REFERENCE DATA

MACH = 5030 50 IN XMRP = 5 7210 IN XS BETA = 000  
 -REF = 8000 IN YMRP = 0000 IN YS NOZZLE = 000  
 BRPF = 4100 IN ZMRP = 0000 IN ZS  
 SCALE = 0055

RUN NO 301/ 0 RN/L = 7 18 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCPV	CBP1	CBP2	CBP3
1 949	109 070	18 09110	9 75980	- 56170	- 21520	.06020	- 12500	53940	.00000	.00000	.00000
1 949	107 950	18 54450	10 12920	- 42070	- 20850	.02680	- 12480	53880	.00000	.00000	.00000
1 949	105 500	18 57630	10 59280	- 30110	- 18840	.04360	- 11340	53780	.00000	.00000	.00000
1 949	103 960	19 39380	11 10390	- 18620	- 18410	.02400	- 11350	53670	.00000	.00000	.00000
1 949	101 970	19 81430	11 53220	- 06560	- 18430	.00370	- 12580	53590	.00000	.00000	.00000
1 949	99 980	20 9110	11 97720	05780	- 18040	.02970	- 14170	53500	.00000	.00000	.00000
1 949	98 000	20 34460	12 55290	17870	- 18920	.01740	- 12490	53300	.00000	.00000	.00000
1 949	96 020	20 53750	13 12170	29170	- 15800	.02500	- 11350	53120	.00000	.00000	.00000
1 949	94 040	20 76420	13 65600	39960	- 11550	.05860	- 13090	52970	.00000	.00000	.00000
1 949	92 060	20 74140	14 10000	43840	- 15970	.10350	- 13080	52840	.00000	.00000	.00000
1 949	90 180	21 04730	14 39020	50810	- 15670	.07200	- 12220	52760	.00000	.00000	.00000
1 949	88 200	19 44450	12 10080	05370	- 17250	.02140	- 11910	52590	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	.00000	.00000	.00000

RUN NO. 302/ 0 RN/L = 5.26 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCPV	CBP1	CBP2	CBP3
2 740	109 950	17 57260	9 92750	55210	- 16860	- 00450	- 07830	53730	.00000	.00000	.00000
2 740	108 030	18 04170	10 36010	- 42050	- 16680	.02620	- 04480	53650	.00000	.00000	.00000
2 740	106 040	18 43340	10 86130	- 27580	- 17300	- 01580	- 04320	53530	.00000	.00000	.00000
2 740	104 040	18 82120	11 29710	- 15320	- 17950	.00250	- 01930	53440	.00000	.00000	.00000
2 740	102 040	19 15190	11 69500	- 03310	- 18550	.02180	- 00820	53360	.00000	.00000	.00000
2 740	100 040	19 44450	12 9520	08320	- 18370	.02250	- 04070	53230	.00000	.00000	.00000
2 740	98 040	19 7510	12 69010	18160	- 17230	- 00540	- 07950	53140	.00000	.00000	.00000
2 740	96 040	19 91700	13 12570	28990	- 14390	.00230	- 01690	52970	.00000	.00000	.00000
2 740	94 060	20 23380	13 45430	38660	- 13080	.00290	- 14260	52850	.00000	.00000	.00000
2 740	92 080	20 23130	13 76150	47240	- 13630	.03610	- 09000	52780	.00000	.00000	.00000
2 740	90 100	20 26340	14 14790	55630	- 14980	.02450	- 07800	52640	.00000	.00000	.00000
2 740	88 120	19 42450	12 15880	09310	- 17420	.00500	- 06100	52530	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	.00000	.00000	.00000

(R, H<sub>2</sub>O<sup>2</sup>) (10 μ 75 )

## PARAMETRIC DATA

SREF	=	.5030 SQ IN.	XMRP	=	5.7210 IN. XS	BETA	=	.000	PHI	=	.000
LREF	=	.8000 IN	YMRP	=	.0000 IN. YS	NOZZLE	=	.009			
BREF	=	.8000 IN	ZMRP	=	.0000 IN. ZS						
SCALE	=	.0055									

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RUN NO. 299/ 0 RN/L = 5.31 GRADIENT INTERVAL = -5.00/ 5.00

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MACH	ALP-A	CNH	CLPM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
396	127 640	9 76620	-4	20550	-5 339430	-27340	-04930	61850	00000	-00300	00000
396	129 570	5 34060	-3	77460	-5 17480	-33720	-06980	61630	00000	00000	00000
396	125 630	9 36870	-4	64070	-5 71640	191400	-07510	62130	00000	00000	00000
396	123 620	10 24930	-4	77690	-6 14440	146870	-03160	62110	00000	00000	00000
396	119 540	10 34100	-3	37420	-5 58370	-2 25490	-13030	61600	00000	00000	00000
396	121 640	10 45930	-4	63630	-6 63100	1 71340	-03300	61990	00000	00000	00000
396	117 620	10 62440	-3	109230	-5 10920	-2 33470	-05770	61700	00000	00000	00000
396	113 640	10 73320	-2	93760	4 35030	-2 05230	-18610	61400	00000	00000	00000
396	115 640	10 85910	-2	73140	4 82440	-2 33730	-16700	61430	00000	00000	00000
396	111 640	11 21460	-1	82460	3 80260	-1 72100	-10490	61600	00000	00000	00000
396	109 700	11 41360	-1	24140	3 44330	-1 31400	-06840	61620	00000	00000	00000
396	119 640	10 24330	-3	33570	-5 61600	2 21400	-07640	61400	00000	00000	00000
396	121 640	10 33000	-3	00000	00000	00000	00000	61400	00000	00000	00000

RUN NO	Z98/0	RN/L	GRADIENT INTERVAL	T <sub>0</sub> , °C
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HACH	ALPHA	CMH	CA	CYM	CYMH	REL	KCP L	CMH	CMH3	CMH3
599	129 580	-4 35130	-1 68300	4 33930	02250	-1 50000	61870	00000	00000	00000
599	129 580	-4 19460	-1 59370	-4 03510	-75840	-1 69000	61870	00000	00000	00000
599	125 560	-3 89640	-1 54200	4 54200	-2 76250	-0 72000	61440	00000	00000	00000
599	123 570	-2 91770	-1 35360	-4 95100	-3 47620	-1 30000	60000	00000	00000	00000
599	121 590	-1 04490	-1 16100	4 26410	-3 25190	-1 89000	54400	00000	00000	00000
599	115 560	-2 47490	-1 78300	3 42040	-2 31560	-1 30000	52000	00000	00000	00000
599	111 570	-3 18640	-1 51260	-3 57160	-2 18000	-1 30000	52000	00000	00000	00000
599	105 560	-2 47530	-1 97400	2 35270	-1 04000	-1 30000	40590	00000	00000	00000
599	113 560	-2 56240	-1 30000	-1 82190	70340	-1 30000	60110	00000	00000	00000
599	111 580	-2 36630	-1 54570	1 11130	-1 47000	-1 30000	52000	00000	00000	00000
599	109 660	-2 12070	-43570	-1 35230	1 62570	-1 30000	53400	00000	00000	00000
599	114 560	-2 83200	-1 13950	-2 88410	-2 48730	-1 30000	52000	00000	00000	00000
599	114 560	-2 83200	-1 09000	00030	1 50100	-1 30000	52000	00000	00000	00000

(R1H028) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

PARAMETER DATA

REFERENCE DATA

BETA = .000  
NOZZLE = .000

SREF = 5030 SQ. IN.  
LREF = 8000 IN.  
BREF = .8000 IN.  
SCALE = .0055

XMRP = 5.7210 IN. XS  
YMRP = .0000 IN. YS  
ZMRP = .0000 IN. ZS

MACH	ALPHA	CNM	CLMM	CA	CYN	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.900	129.200	10.97980	-6.24760	-1.77240	-1.93530	-1.24610	-1.12170	.62980	.00000	.00000	.00000
.900	127.270	11.59670	-6.44480	-1.65750	-1.77130	-1.35400	-1.11420	.52870	.00000	.00000	.00000
.900	125.230	12.16510	-6.50690	-1.53150	-1.70510	-1.36660	-1.10180	.62700	.00000	.00000	.00000
.900	123.220	12.71750	-6.43290	-1.37780	-1.45860	-1.26100	-1.09930	.62460	.00000	.00000	.00000
.900	121.220	13.12370	-5.93230	-1.22400	-1.25820	-1.18860	-1.08670	.62020	.00000	.00000	.00000
.900	119.230	13.44240	-5.41230	-1.10530	-1.09940	-1.06230	-1.06890	.61620	.00000	.00000	.00000
.900	117.250	13.87650	-4.93110	-1.03250	-1.06720	-1.06420	-1.07360	.61270	.00000	.00000	.00000
.900	115.270	14.14880	-4.21360	-1.75310	-1.63970	-1.20130	-1.06740	.60770	.00000	.00000	.00000
.900	113.260	14.59140	-3.45130	-1.58420	-1.51570	-1.05510	-1.06300	.60270	.00000	.00000	.00000
.900	111.290	14.81320	-2.90830	-1.41000	-1.44720	-1.05780	-1.05790	.59940	.00000	.00000	.00000
.900	109.390	15.04810	-2.26990	-1.23350	-1.42340	-1.05490	-1.05490	.59570	.00000	.00000	.00000
.900	110.220	13.54520	-5.37570	-1.11870	-1.93670	-1.65830	-1.08410	.61570	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 297/ 0 RN/L = 6.42 GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 296/ 0 RN/L = 6.80 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYN	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.199	129.250	13.88910	-9.5470	-1.96660	-1.12280	-1.02320	-1.17670	.57780	.00000	.00000	.00000
1.199	127.310	14.42960	1.00440	-1.83070	-1.13390	-1.02680	-1.17220	.57770	.00000	.00000	.00000
1.199	125.300	14.97920	1.33640	-1.69270	-1.12090	-1.00200	-1.14990	.57610	.00000	.00000	.00000
1.199	123.300	15.50470	1.79550	-1.57260	-1.09300	-1.96750	-1.14200	.57390	.00000	.00000	.00000
1.199	121.310	16.02500	2.46370	-1.44070	-1.04630	-1.86240	-1.14680	.57080	.00000	.00000	.00000
1.199	119.340	16.50420	3.63770	-1.34830	-1.02130	-1.57260	-1.12540	.56540	.00000	.00000	.00000
1.199	117.360	17.03190	4.64990	-1.18070	-1.98230	-1.42240	-1.14230	.56110	.00000	.00000	.00000
1.199	115.370	17.57870	5.26510	-1.01780	-1.94420	-1.42140	-1.13270	.55890	.00000	.00000	.00000
1.199	113.370	17.97520	5.82890	-1.85560	-1.92630	-1.44720	-1.14590	.54690	.00000	.00000	.00000
1.199	111.380	18.32450	6.26820	-1.68340	-1.88490	-1.40580	-1.18800	.55550	.00000	.00000	.00000
1.199	109.480	18.59470	6.54710	-1.53010	-1.86660	-1.37330	-1.12460	.55460	.00000	.00000	.00000
1.199	119.350	16.37790	3.70050	-1.33250	-1.98680	-1.54830	-1.14040	.56490	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY



MSFC TWI604 (SABF) SRB WITH ALL PROJECTIONS

(R1H028) ( :0 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	N. YS
LREF	=	8000	IN.	YMRP	=	.0000	N. YS
BREF	=	8000	IN.	ZMRP	=	.0000	N. ZS
SCALE	=	0055					

### PARAMETRIC DATA

BETA	•	.000	PHI	•	.000
NOZZLE	•	.000			

RUN NO.	300/ 0	RN/L =	7.17	GRADIENT INTERVAL =	-5.00/ 5 00
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[illegible]

RUN NO. 303/ 0 RN/L = 5.25 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMA	CLMH	CA	CYM	CYMH	CBL	XCP/L	LEP1	CBP2	CBP3
2.740	129.550	12 23110	5 26290	-2 00170	-1.13610	-0.04150	-0.9380	54630	00000	0.0000	0.0000
2.740	127.650	12 65490	5.83390	-1.78390	-1.14480	-0.1260	-0.9300	54630	00000	0.0000	0.0000
2.740	125.650	13 53180	6 37280	-1.74380	-1.15940	-0.0050	-0.910	54490	00000	0.0000	0.0000
2.740	123.650	14 03250	6 95320	-1 60070	-1.15930	-0.1640	-0.5150	54350	00000	0.0000	0.0000
2.740	121.640	14 69270	7 36580	-1.45000	-1.15770	-0.1870	-0.7650	54250	00000	0.0000	0.0000
2.740	119.640	15 28200	7 80050	-1 28290	-1.15430	-0.1050	-0.6770	54170	00000	0.0000	0.0000
2.740	117.640	15 87500	8 23190	-1 12070	-1.15280	-0.2020	-0.5940	54100	00000	0.0000	0.0000
2.740	115.630	16 43020	8.60030	-0.97330	-1.14120	-0.0130	-0.49100	54070	00000	0.0000	0.0000
2.740	113.630	15.93170	9.07260	-0.80970	-1.15600	-0.3360	-0.7270	53950	00000	0.0000	0.0000
2.740	111.630	17 40030	9.46800	-0.64920	-1.16150	-0.3620	-0.98340	53850	00000	0.0000	0.0000
2.740	109.730	17 83340	9 85070	-0.50320	-1.16780	-0.0600	-0.7830	53830	00000	0.0000	0.0000
2.740	119.640	15 26550	7.75270	-1 29040	-1.16200	-0.07460	-0.6440	54190	00000	0.0000	0.0000
GRADIENT		00000	00000	00000	0.00000	0.00000	00000	00000	00000	0.0000	0.0000

(R1)H028) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB WITH ALL PROTOBERANCES

PARAMETRIC DATA

REFERENCE DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

SREF = 5030 SQ. IN.  
LREF = 8000 IN.  
BREF = 8000 IN.  
SCALE = .0055

RUN NO. 304/ 0 RN/L = 7.20 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	127 630	12.40570	5.29790	-1.88200	-1.10810	-1.02920	-0.7670	.54850	.00000	.00000	.00000
3.480	125 630	13.00320	5.76840	-1.74930	-1.09900	-1.01870	-0.7540	.54710	.00000	.00000	.00000
3.480	123 630	13.60760	6.24090	-1.61110	-1.12140	-0.93440	-0.5910	.54600	.00000	.00000	.00000
3.480	121 630	14.17630	6.76920	-1.44240	-1.12940	-0.81720	-0.5740	.54440	.00000	.00000	.00000
3.480	119 620	14.77260	7.22130	-1.27460	-1.12730	-0.6730	-0.4750	.54350	.00000	.00000	.00000
3.480	117 620	15.38470	7.65770	-1.11430	-1.13420	-0.51140	-0.6230	.54280	.00000	.00000	.00000
3.480	115 620	15.92560	8.09700	-94960	-1.2400	-0.2930	-0.4780	.54190	.00000	.00000	.00000
3.480	113 610	16.39450	8.48430	-79880	-1.12160	-0.2070	-0.7180	.54120	.00000	.00000	.00000
3.480	111 610	16.84550	8.88730	-62030	-1.11320	-0.0290	-0.5720	.54030	.00000	.00000	.00000
3.480	109 720	17.31210	9.39270	-48320	-1.12650	-0.2250	-0.6520	.53910	.00000	.00000	.00000
3.480	119 620	14.78030	7.20630	-1.28000	-0.4680	-0.0090	-0.7690	.54360	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

(R1)H029) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB WITH ALL PROTOBERANCES

PARAMETRIC DATA

REFERENCE DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

SREF = 5030 SQ. IN.  
LREF = 8000 IN.  
BREF = 8000 IN.  
SCALE = .0055

RUN NO. 45/ 0 RN/L = 5.16 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.90	148 800	4.23560	.09160	-2.00660	-1.88620	-4.56570	-0.7560	.58160	-.16440	-.09910	-.05270
3.90	146 820	5.26960	.71540	-2.01520	-2.99090	-5.12150	-0.7600	.57230	-.32630	-.14750	-.10340
3.90	144 780	5.94070	1.02990	-2.01560	-3.56470	-5.50940	-0.8740	.56920	-.42960	-.18400	-.15380
3.90	142 760	6.46930	.91870	-1.94740	-3.84740	-4.80900	-1.0050	.57180	-.40910	-.21340	-.15910
3.90	140 740	6.71610	.67770	-1.91000	-4.16450	-3.92440	-1.11270	.57520	-.49030	-.24700	-.15620
3.90	138 690	6.36190	.23850	-1.84320	-4.68520	-4.60960	-1.1200	.58060	-.42480	-.26840	-.21680
3.90	136 660	7.28780	-.20730	-1.79130	-5.15080	-4.75660	-1.11150	.58570	-.41360	-.26980	-.23820
3.90	134 640	7.98270	.15480	-1.75820	-5.39940	-3.72960	-1.0990	.58170	-.50570	-.33790	-.23820
3.90	132 550	8.42010	.15750	-1.70060	-5.89980	-2.58150	-1.2580	.58190	-.55490	-.35680	-.23570
3.90	130 450	10.05530	-4.7760	-1.61100	-5.87020	-0.01500	-1.0740	.58720	-.60200	-.41150	-.24760
3.90	128 510	10.99740	-28260	-1.55450	-6.27930	.93090	-1.1330	.58550	-.78110	-.50000	-.27330
3.90	139 690	7.03370	.20090	-1.86810	-4.78780	-4.56480	-1.12310	.58100	-.48690	-.27630	-.21040
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TMT604 (SABF) SRB WITH ALL PROTUBERANCES

( 51. m 01 ) ( 1620H181 )

## REFERENCE DATA

XSREF =	.5030	SQ. IN.	XMRP =	5.7210	IN. XS
YREF =	8000	IN	YMRP =	.0000	IN. YS
ZREF =	8000	IN	ZMRP =	.0000	IN. ZS
SCALE =	.0055				

## PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

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RUN NO.      46/ 0      RN/_ = 5.01  GRADIENT INTERVAL = -5 00/ 5 00

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MACH	ALPHA	GM1	CLM1	CA	CYM	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
599	148 620	5 00740	147120	-2.06970	-2.97810	-5.44220	-0.7800	57570	-24000	-07180	01360
599	146 630	5.53930	12040	-2 04560	-3.16510	-4 98750	-0.7400	58160	-30280	-	05140
599	144 680	6 07320	-11170	0.73920	-3.28630	-4 10410	-0.7140	58500	-37600	-14970	00920
599	142 540	6.55760	-13950	-1 94480	-3.77060	-3.25620	-0.7910	58830	-30430	-10730	-
599	140 490	6.94290	-162290	-1.94320	-4.41390	-2.94290	-0.8020	59070	-31040	-22730	-21970
599	138 360	7 85710	-17130	-1 83350	-4 81000	-1 85870	-0.6640	59080	-36020	-25390	-26780
599	136 320	8 74540	-30470	-1 84120	-4.54040	-0.6780	-0.6620	59260	-4140	-3720	-25930
599	134 210	9 93260	-20200	-1 77240	-3.79240	3 02200	-0.6450	59500	-4700	-34650	-21750
599	131 290	11 57620	-1 06420	-1 63150	-3 23660	575040	-0.610	59690	-5700	-70990	-27050
599	129 910	12 18530	-1.75970	-1 62090	-3 07630	5 60720	-0.6040	59820	-6740	-7710	-270
599	127 690	12 44920	-2 70650	-1 52390	-2 97820	4 90610	-0.6000	60110	-70930	-670	-27480
599	126 390	7 85160	-1.72480	-1 50340	-4 86150	-2 05350	-0.6120	59940	-24740	-24450	-29500
SPADIENT		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000

RUN NO. 47/ 0 RN/L = 5 31 GRADIENT INTERVAL = 5 00/ 5 00

MACH	ALPHA	CVM	CLMM	CA	CYM	C-NH	CBL	J-P/L	CBP	CBP-2	CBP-3
900	147 940	6 42940	-1 60310	-2 29030	-2 24670	2 37330	-04730	50110	-12390	-15900	-1960
900	145 930	6 76390	-2 37390	-2 25560	-2 40700	47830	-05150	51150	-12390	-15900	-20180
900	143 750	7 84160	-2 14340	-2 2760	-2 39840	09000	-00160	50930	-12390	-15900	-21180
900	141 560	8 82340	-3 23130	-2 15920	-2 70520	25540	-06730	61360	-20150	-24740	-31100
900	139 750	9 65100	-4 05350	-2 07820	-2 76680	43030	-06930	51780	-30150	-3560	-41100
900	137 250	10 47210	-4 47620	-2 00020	-2 70390	10930	-06610	61830	-30150	-3560	-4180
900	135 090	11 08110	-5 09330	-1 91390	-2 45510	14950	-06730	62390	-30150	-3560	-4540
900	132 960	11 95840	-5 41620	-1 82870	-2 19180	-02670	-07490	62090	-3170	-36930	-49520
900	130 790	12 46600	-5 83630	-1 74350	-2 03910	-06780	-06330	62160	-51160	-31300	-53450
900	128 700	12 96050	-6 51390	-1 58650	-1 91910	27620	-07550	62040	-50150	-30000	-56000
900	126 690	13 45580	-7 08650	-1 45390	-1 58310	60180	-07860	61630	-50150	-30000	-59000
900	137 200	10 47140	-4 61130	1 96530	2 45340	07470	-07540	61630	-30150	-3560	-4180
GRADIENT		00000	00000	00000	00000	00000		00000	00000	00000	00000

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF  
MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

DATE 10 JUL 75

(R14029) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

BETA = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 48/ 1 RN/L = 6.68 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CMH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP3
1.195	149 160	7.56230	-1.96280	-2.79250	-1.85030	-1.72260	-1.08330	.60450	.00000
1.195	146 090	8.50050	-1.69240	-2.75690	-1.91950	-1.32130	-.09090	.59960	.00000
1.195	143 910	9.44280	-1.38180	-2.68840	-1.00590	-1.01160	-.08920	.59530	.00000
1.195	141 670	11.08750	.09380	-2.59500	-1.56910	-30480	-.09980	.58270	.00000
1.195	139 550	11.12280	-1.80480	-2.47990	-1.20820	-.94230	-1.1620	.58660	.00000
1.195	137 380	12.10090	-1.31370	-2.40530	-1.17670	-1.18390	-1.2680	.59220	.00000
1.195	135 170	13.23090	-.72300	-2.29190	-1.23020	-1.45420	-1.2740	.56780	.00000
1.195	133 030	13.95290	-.83440	-2.19460	-1.28670	-1.24740	-1.16320	.58820	.00000
1.195	130 880	14.55570	-1.40070	-2.09920	-1.32800	-1.19520	-1.5720	.59120	.00000
1.195	128 730	15.14550	-1.72930	-1.93270	-1.38290	-1.08270	-1.5110	.59270	.00000
1.195	126 720	15.61650	-1.84850	-1.76190	-1.40710	-1.00830	-1.5260	.59300	.00000
1.195	137 390	12.11180	-1.20200	-2.40720	-1.17420	-1.24010	-.11770	.59150	.00000
GRADIENT		00000	00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 106/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CMH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP3
1.949	147 460	7.47880	1.47430	-2.79680	-1.38440	-4.3830	-1.08070	.56730	-23480
1.949	145 420	8.22160	1.88930	-2.76760	-37350	-45880	-1.07870	.56460	-22720
1.949	143 160	9.25320	2.08300	-2.76400	-1.37920	-39800	-1.09930	.56510	-23910
1.949	141 060	9.96390	2.35700	-2.69430	-34840	-30990	-1.0470	.56400	-23690
1.949	138 920	10.56380	2.73000	-2.59020	-31210	-29220	-1.11150	.56230	-23090
1.949	136 800	11.24750	3.08300	-2.45390	-28760	-22410	-1.1160	.56100	-22290
1.949	134 550	11.98160	3.35050	-2.32420	-26430	-24220	-1.2070	.56050	-21600
1.949	132 510	12.64350	3.55970	-2.20500	-26230	-22520	-1.2440	.56040	-20170
1.949	130 310	13.40170	3.61570	-2.07930	-24690	-24520	-1.2160	.56140	-19590
1.949	128 240	13.83730	3.93650	-1.95070	-244900	-18840	-1.2600	.56020	-15940
1.949	126 190	14.61870	4.07800	-1.82800	-25650	-18030	-1.2820	.56060	-14680
1.949	125 870	11.02350	3.10430	-2.41590	-26890	-19940	-1.1180	.56040	-22210
GRADIENT		00000	00000	.00000	.00000	.00000	.00000	.00000	.00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

PAGE 76

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

R1H029) ( 10 JUL 75 :

## REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN XS  
 LREF = 8000 IN YMRP = 3000 IN YS  
 BRUF = 8000 IN ZMRP = 0000 IN ZS  
 SCALE = 0.055

## PARAMETRIC DATA

BETA = 000 PHI = 000  
 NOZZLE = 000

RUN NO. 25/ 1 RN/L = 5 16 GRADIENT INTERVAL = 5 00/ 5.00

MACH	ALPHA	CUM	CLMM	CA	CYM	CYMM	CBL	YCP/L	CBP1	CBP2	CBP3
2 740	145 030	6 23750	1 30580	-2 75310	-25700	-03210	-06720	56630	00000	00000	00000
2 740	147 030	5 81260	1 52790	-2 74650	-27740	-03930	-06090	56920	00000	00000	00000
2 740	149 030	7 52230	1 66810	-2 71960	-27080	-05200	-06140	56530	00000	00000	00000
2 740	142 040	8 13120	1 85130	-2 44260	-29080	-07920	-05240	56490	00000	00000	00000
2 740	140 040	8 92630	2 00750	-2 39700	-31180	-04540	-04730	56500	00000	00000	00000
2 740	138 050	9 53120	2 19200	-2 29430	-32280	-07110	-03120	56490	00000	00000	00000
2 740	136 040	9 53120	2 24840	-2 30840	-33320	-04590	-02790	56550	00000	00000	00000
2 740	134 040	0 54520	2 44120	-2 23670	-34430	-07290	-05190	56920	00000	00000	00000
2 740	132 040	1 64130	2 73420	-2 19750	-35710	-07930	-07240	56420	00000	00000	00000
2 740	130 040	1 81690	3 13350	-2 1100	-37170	-07420	-07430	56360	00000	00000	00000
2 740	128 040	2 83860	3 53320	-2 1100	-30770	-04100	-04440	56300	00000	00000	00000
2 740	126 040	4 83890	4 16300	-2 3130	-33060	-02400	-02400	56310	00000	00000	00000
2 740	124 040	6 83890	4 80320	-2 3130	-30170	-02400	-02400	56320	00000	00000	00000

RUN NO. 25/ 3 RN/L = 5 70 GRADIENT IN VAL = 5 00/ 5.00

MACH	ALPHA	CUM	CLMM	CA	CYM	CYMM	CBL	YCP/L	CBP1	CBP2	CBP3
4 450	148 040	5 34200	1 83440	-2 67400	-10680	-04740	-07600	56450	00000	00000	00000
4 450	146 040	5 94760	1 84720	-2 49750	-10670	-06870	-06240	56740	00000	00000	00000
4 450	144 050	5 58340	1 59580	-2 31530	-10370	-07130	-07300	56930	00000	00000	00000
4 450	142 050	7 24630	2 4610	-2 1100	-12530	-07560	-07700	56900	00000	00000	00000
4 450	140 050	7 97430	2 26740	-2 07420	-11270	-06870	-07400	56920	00000	00000	00000
4 450	138 050	8 63120	2 74630	-2 21790	-15340	-04730	-06300	56920	00000	00000	00000
4 450	136 040	5 26450	2 53420	-2 17330	-14800	-04100	-05900	56920	00000	00000	00000
4 450	134 040	9 24160	2 95340	-2 20320	-15390	-04730	-05900	56920	00000	00000	00000
4 450	132 040	10 44030	3 44720	-2 17500	-14630	-04730	-05900	56920	00000	00000	00000
4 450	130 040	11 14730	3 73730	-2 07450	-16480	-04730	-05900	56920	00000	00000	00000
4 450	128 040	11 12620	4 11540	-1 98450	-17220	-02790	-05900	56920	00000	00000	00000
4 450	126 040	2 24660	2 74630	-2 27870	-15940	-02790	-05900	56920	00000	00000	00000
4 450	124 040	2 24660	2 74630	-2 27870	-15940	-02790	-05900	56920	00000	00000	00000

REFERENCE DATA

SREF = 5030 SQ IN.

LREF = 8000 IN

BREF = 8000 IN

SCALE = 0055

XMRP = 5 7210 IN. XS

YMRP = .0000 IN. YS

ZMRP = .0000 IN. ZS

BETA = .000

NOZZLE = .000

PARAMETRIC DATA

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
394	159 070	73950	-99310	-1 50010	-0 7560	.11790	-0.3090	.69290	04400	.08960	.08990
394	167 150	98430	-1.08470	-1 55530	-10420	-.10640	-0.1970	.67330	04160	.08110	.07930
394	175 110	1 34300	-1.11660	-1.63610	-11800	-.26530	-0.3930	.55120	02800	.06782	.05540
394	183 100	1 68330	-1.10140	-1 67600	-18060	-58080	-0.1760	.63670	02040	.07600	.04020
394	181 090	2 04010	-.96860	-1 73620	-24460	-.96760	-.03670	.62210	03410	-0.0420	.34650
394	159 060	2 37580	-78970	-1 77920	-33880	-1 48110	-.05250	.61050	01800	-0.1030	.02780
394	157 040	2 2990	-66890	-1 85460	-48490	-2 16920	-0.3900	.60340	-0.1020	.03550	-0.3000
394	155 010	3 12360	-54470	-1 91790	-80030	-3 05480	-0.5250	.59760	-0.4110	.00450	-0.34110
394	152 970	3 47450	-.24200	-1 95670	-1 06950	-3.59480	-0.0430	.58910	-0.05440	-0.0910	-0.34650
394	50 950	3 94760	.11290	-1 95770	-1 54610	-4 14590	-0.0720	.58100	-.13780	-.06730	-.24510
394	149 020	4 16770	.09000	-1 93380	-1.66540	-4 23580	-0.0820	.58180	-.22520	-0.10670	-0.34660
394	159 050	2 34770	-.75130	-1.79350	-.35660	-1.55190	-0.1110	.60910	-.01170	-0.3150	-.21170
GRADIENT		00000	00000	00000	00000	.00000	.00000	00000	00000	00000	00000

REFERENCE DATA

SREF = 5030 SQ IN.

LREF = 8000 IN

BREF = 8000 IN

SCALE = 0055

XMRP = 5 7210 IN. XS

YMRP = .0000 IN. YS

ZMRP = .0000 IN. ZS

BETA = .000

NOZZLE = .000

PARAMETRIC DATA

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
596	169 040	74650	-92680	-1.56560	00980	.22100	00180	.68460	01460	.08880	.39330
596	167 110	1 07300	-1.06390	-1 65010	-08700	.05460	-0.3500	.66430	01270	.08960	.39410
596	165 050	1 42780	-1 23070	-1 71210	-15470	-.24540	-0.3620	.65370	01460	.08240	.39050
596	163 030	1 93830	-1 20480	-1 77030	-22360	-62490	-0.3030	.63680	04210	.07540	.36730
596	160 340	2 23570	-1 32170	-1 84040	-50780	-1 17880	-0.1240	.63160	01800	.06580	.34140
596	158 950	2 67230	-1 29340	-1 86590	-92270	-1 48120	-0.1590	.62360	-0.0270	.05280	.33840
596	156 930	2 94510	-1 10850	-1 93800	-82920	-2 31840	-0.3870	.61430	-0.0270	.04950	.30180
596	54 900	3 31090	-87210	-1 98980	-1 02290	-3.08500	-0.2370	.60490	-0.1790	.02320	-0.0270
596	152 840	3 64370	-41000	-2 04920	-1 52640	-4 04320	-0.4200	.59200	-0.7120	-0.3410	-0.2690
596	149 130	4 61640	.42440	-2 01300	-2 50190	-5 05400	-0.06420	.57590	-0.18620	-0.07910	-0.34400
596	146 110	5 14190	31450	-2 03500	-2 83600	-4 60400	-0.3710	.57840	-0.23050	-0.10280	-0.04030
596	143 950	2 62720	-1 37370	-1 84280	-94110	-1 44580	-0.2460	.62600	-0.00970	.03880	.02630
GRADIENT		00000	00000	00000	00000	.00000	.00000	00000	00000	00000	00000

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

(R14030) (10 44 35)

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = 9300 IN. YMRP = .0000 IN. YS  
BREF = 9000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

PARAMETRIC DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

RUN NO. 95/ 0 RN/L = 6 25 GRADIENT INTERVAL = -5 00/ 5 00

ALPHA	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
1 179 189 800	28230	-1 82910	- 05260	.31210	01050	56020	- 02510	04210	- 00050
1 179 189 810	23990	-1 88900	05340	.28770	04000	56890	- 04390	02500	- 01670
1 179 189 820	174320	-1 97260	- 08630	- 03800	13540	76360	- 16120	00870	- 03340
1 179 189 830	2 142 5	-2 07160	- 55500	- 66950	01670	99500	- 07730	07120	- 05480
1 179 189 840	2 48410	2 5670	-1 0 260	- 72020	02540	59700	14240	- 14240	- 38470
1 179 189 850	2 48410	2 5670	-1 0 260	- 72020	01140	59820	10740	- 10740	10470
1 179 189 860	3 5 390	2 21150	-1 01840	1 14440	02130	60700	17220	- 17220	11860
1 179 189 870	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 880	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 890	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 900	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 910	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 920	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 930	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 940	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 950	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 960	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 970	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 980	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310
1 179 189 990	4 24440	2 27450	-1 12830	2 23520	01680	60740	12670	- 12670	- 12310

RUN NO. 96/ 0 RN/L = 6 67 GRADIENT INTERVAL = 5 00/ 5 00

ALPHA	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
1 179 189 800	1 19730	-1 82910	- 05260	.31210	01050	56020	- 02510	04210	- 00050
1 179 189 810	1 5 370	-1 88900	05340	.28770	04000	56890	- 04390	02500	- 01670
1 179 189 820	1 37440	-1 97260	- 08630	- 03800	13540	76360	- 16120	00870	- 03340
1 179 189 830	2 31930	-2 07160	- 55500	- 66950	01670	99500	- 07730	07120	- 05480
1 179 189 840	2 31930	-2 07160	- 55500	- 66950	01670	99500	- 07730	07120	- 05480
1 179 189 850	3 58200	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 860	4 34550	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 870	5 11440	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 880	5 97440	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 890	6 74550	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 900	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 910	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 920	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 930	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 940	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 950	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 960	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 970	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 980	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480
1 179 189 990	8 6110	-2 12770	- 49160	- 1 94970	- 02440	49420	- 07730	07120	- 05480

REFERENCE DATA										PARAMETRIC DATA									
MACH	ALPHA	CMM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3	BETA	NOZZLE	PHI					
1 963	168 830	1 07460	- 98170	-2 59110	-00540	08680	00060	65790	- 09560	- 10660	- 10020	-	-	000	000	-	-	-	-
1 963	166 830	1 50460	- 99300	-2 59580	04550	.22120	.00250	63720	- 11040	- 11570	- 11610	-	-	000	000	-	-	-	-
1 963	164 830	2 03390	-1 15050	-2 63960	- 02760	- 03810	- 01470	62990	- 12270	- 12420	- 13100	-	-	000	000	-	-	-	-
1 963	162 830	2 61610	-1 28750	-2 69190	- 07840	- 31010	- 01440	62350	- 13070	- 13110	- 14280	-	-	000	000	-	-	-	-
1 963	160 830	3 27690	- 99760	-2 71780	- 22010	- 66030	- 02050	60820	- 14490	- 14600	- 16150	-	-	000	000	-	-	-	-
1 963	158 830	3 99790	- 60240	-2 76720	- 30850	-1 04000	- 02800	59570	- 16400	- 16660	- 18020	-	-	000	000	-	-	-	-
1 963	156 830	4 70390	- 14710	-2 77200	- 37330	-1 11830	- 03700	58590	- 18980	- 18030	- 18520	-	-	000	000	-	-	-	-
1 963	154 830	5 39340	.11110	-2 61470	- 35570	- 83890	- 04790	58170	- 21220	- 18770	- 19220	-	-	000	000	-	-	-	-
1 963	149 810	6 75930	83010	-2 78390	- 34650	- 30820	- 05630	57340	- 20010	- 20870	- 21060	-	-	000	000	-	-	-	-
1 963	151 810	6 10260	45620	-2 81210	- 35350	- 41800	- 05010	57730	- 21510	- 20190	- 20270	-	-	000	000	-	-	-	-
1 963	147 800	7 43420	1 21910	-2 76380	- 32430	- 33390	- 07930	57000	- 21950	- 21420	- 21650	-	-	000	000	-	-	-	-
1 963	159 810	3 96510	- 40250	-2 72760	- 32180	-1 06430	- 07490	59170	- 16120	- 16580	- 17730	-	-	000	000	-	-	-	-
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	-	-	000	000	-	-	-	-

REFERENCE DATA										PARAMETRIC DATA									
MACH	ALPHA	CMM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3	BETA	NOZZLE	PHI					
2 740	168 980	98840	- 56830	-2 53250	- 04490	- 11730	- 01600	63030	- 07260	- 07850	- 08060	-	-	000	000	-	-	-	-
2 740	167 020	1 30860	- 54420	-2 56670	- 06370	- 18910	- 02510	61580	- 07870	- 08690	- 08320	-	-	000	000	-	-	-	-
2 740	164 970	1 78400	- 46760	-2 59630	- 08020	- 16180	- 02190	60480	- 08740	- 09420	- 09050	-	-	000	000	-	-	-	-
2 740	162 920	2 30130	- 29280	-2 63870	- 12300	- 17060	- 02530	59350	- 09590	- 09930	- 09630	-	-	000	000	-	-	-	-
2 740	160 870	2 82070	- 11610	-2 67410	- 14040	- 33270	- 02710	58670	- 10740	- 10440	- 10610	-	-	000	000	-	-	-	-
2 740	158 820	3 39170	19390	-2 71260	- 16530	- 61310	- 02950	57870	- 12240	- 11240	- 11460	-	-	000	000	-	-	-	-
2 740	156 770	3 99710	52370	-2 74170	- 17480	- 4 530	- 02620	57270	- 13180	- 11820	- 12210	-	-	000	000	-	-	-	-
2 740	154 720	4 63350	77140	-2 75390	- 16780	- 14110	- 01950	56970	- 12990	- 11580	- 12090	-	-	000	000	-	-	-	-
2 740	152 670	5 15830	1 02480	-2 76380	- 11730	- 13980	- 04120	56720	- 12690	- 11210	- 12000	-	-	000	000	-	-	-	-
2 740	150 620	5 78410	1 14070	-2 75310	- 15880	- 11880	- 03450	56730	- 12840	- 10760	- 11720	-	-	000	000	-	-	-	-
2 740	148 570	6 39330	1 33840	-2 73130	- 13590	- 10660	- 04340	56630	- 12920	- 10290	- 11430	-	-	000	000	-	-	-	-
2 740	146 520	3 40540	15730	-2 71270	- 7420	- 53380	- 02430	57360	- 12010	- 11140	- 11880	-	-	000	000	-	-	-	-
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	-	-	000	000	-	-	-	-

ORIGINAL PAGE IS  
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DATE 10 JUL 75  
TABULATED SOURCE DA A, MSFC THT 604, SA-BF  
MSFC INTECH (SABF) SRB WITH ALL PRO-SEGMENTS

(RIN=30) (10 JUL 75)

PARAMETRIC DATA

REF = 5030 SQ IN XMRP = 5.7210 IN XS BETA = 000 PHI = 000  
REF = 8000 IN YMRP = 0000 IN YS NOZZLE = 000  
BREF = 8000 IN ZMRP = 0000 IN ZS  
SCALE = 0055

RUN NO. 19/ 0 RN/L = 7.11 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CIN	CLIM	CA	CYM	CYM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	159.000	95080	18340	-2.49100	-0.4610	-0.9890	-0.1200	60090	00000	00000	00000
3.480	157.500	1.20770	-0.9860	2.51910	-0.3890	-1.0960	-0.1730	59000	00000	00000	00000
3.480	156.000	1.51550	0.0460	-2.54020	-0.7980	-1.5030	0.2730	46300	00000	00000	00000
3.480	162.500	1.97500	15500	2.58560	-1.0410	-2.3630	-0.2400	51000	00000	00000	00000
3.480	160.000	2.44310	32540	-2.43540	-0.9740	-2.7720	-0.2170	51280	00000	00000	00000
3.480	159.900	2.95140	67450	2.47080	-1.0690	-3.3050	-0.1250	54520	00000	00000	00000
3.480	160.000	3.50070	46840	2.73420	-0.8540	-3.1250	-0.1930	56130	00000	00000	00000
3.480	164.000	4.07010	11900	-2.43110	-0.7440	-0.5400	-0.2200	45300	00000	00000	00000
3.480	163.000	4.74000	13140	-2.74400	-0.9200	-0.8700	-0.4000	44000	00000	00000	00000
3.480	162.000	5.33500	14460	-2.74400	-0.9350	-0.5740	-0.3000	44000	00000	00000	00000
3.480	163.000	5.94900	14460	-2.74400	-1.0400	-0.6900	-0.4000	44000	00000	00000	00000
3.480	163.000	6.58900	54430	-2.65100	-1.0300	-3.1130	-0.4400	51000	00000	00000	00000
3.480	163.000	7.25000	60000	-1.00000	-0.6000	-0.5000	-0.1000	44000	00000	00000	00000

RUN NO. 20/ 0 RN/L = 5.69 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CIN	CLIM	CA	CYM	CYM	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	159.000	17400	-4000	-2.37160	-0.3340	-1.0420	-0.5700	50000	00000	00000	00000
4.450	167.100	95000	-4000	-2.40090	-0.3460	-1.0400	-0.6700	50000	00000	00000	00000
4.450	165.400	1.00400	10400	2.40050	-0.6400	-1.4000	-0.3000	44000	00000	00000	00000
4.450	163.100	1.04000	03400	-2.40020	-0.9040	-1.4000	-0.3000	44000	00000	00000	00000
4.450	164.000	2.07800	50000	-2.54470	-0.7140	-1.6400	-0.2700	45200	00000	00000	00000
4.450	164.000	2.45040	50000	2.57050	-0.9390	-1.4300	-0.2170	45500	00000	00000	00000
4.450	165.000	3.06740	10000	-2.43300	-0.9400	-1.7300	-0.2340	51000	00000	00000	00000
4.450	164.000	3.60010	10000	2.40670	-1.0400	-3.0000	-0.1840	54340	00000	00000	00000
4.450	164.000	4.16800	14000	-2.40640	-0.7130	-0.7400	-0.3000	44000	00000	00000	00000
4.450	165.000	4.74000	14000	2.40600	-0.7070	-1.3900	-0.3000	44000	00000	00000	00000
4.450	164.000	5.33500	20000	-2.40730	-0.9400	-0.6050	-0.6000	44000	00000	00000	00000
4.450	164.000	5.94900	10000	-2.40650	-0.9800	-1.4340	-0.3000	44000	00000	00000	00000
4.450	163.000	6.58900	90000	-1.00000	-0.6000	-0.5000	-0.1000	44000	00000	00000	00000



DATE 10 JUL 75

TABULATED SOURCE DATA. MSFC THT 604. SA-BF

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MSFC THT604 (SABF) SRB WITH ALL PROTOBERAVES

(IRIH031) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN. XS  
LREF = 6000 IN YMRP = 0000 IN. YS  
BREF = 8000 IN ZMRP = 0000 IN. ZS  
SCALE = 0.055

BETA = .000 PHI = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO 527 0 RN/L = 5 23 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
395	189 520	- 63970	74210	-1 58660	- .05280	- 22870	00480	67800	07080	09430	06470
395	187 600	- 40360	60470	-1 48760	- .05460	- 10040	00540	68980	08810	11280	07460
395	185 530	- 31600	41540	-1 36030	- .02070	05550	- 01000	69060	08720	10920	08470
395	183 630	- 17670	18680	-1 29780	- .01950	11800	- 03780	66960	08800	11260	08920
395	181 550	- 69400	- 18000	-1 24880	.00190	.14310	- 01700	37170	08900	10500	09020
395	179 540	67250	- 41630	-1 24400	- .07660	07770	- 02200	1 05180	08930	09920	09180
395	177 520	14010	- 52780	-1 24020	- .31220	18000	- .01820	89060	08870	09490	03850
495	175 420	24680	- 68380	-1 24510	- .00910	13660	- .02530	50340	04550	09040	03900
395	173 440	18220	- 96730	-1 31020	- .07520	08040	03080	78990	04560	08560	10170
395	171 420	52210	- 93230	-1 41080	- .05850	14310	- 03390	72310	06060	.06420	08870
395	169 530	77510	- 98360	-1 51070	- .05770	12040	- 04380	68690	05620	05000	06730
495	174 540	10700	- 40830	-1 25670	- .00690	05640	- 00850	89470	08520	09260	09140
GRADIENT		00000	00000	00000	00000	00000	00000	00000	03000	00000	00000

RUN NO 517 0 RN/L = 5 00 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
598	189 540	- 63850	74830	-1 56350	- .03640	- 28340	01320	67900	04540	07250	05560
598	187 620	- 45770	59900	-1 56300	00100	- 19010	03150	69010	07620	08070	06730
598	185 600	- 30960	18020	-1 45090	- .03920	- 01280	- 03270	68390	08850	09260	07960
598	183 630	- 15450	19060	-1 37840	- .02430	- 01130	- 01120	68400	03520	09780	08710
598	181 550	- 17510	14500	-1 30450	.00150	16460	01400	37430	09540	09720	09100
598	179 540	05130	26910	-1 24420	- .00860	09840	- 03020	1 01100	03420	08530	09160
498	177 520	15300	- 47200	-1 26110	- .01810	06450	- 03740	83500	03450	08140	09710
598	175 520	20200	- 61970	-1 32300	- .04200	07390	- 03640	83360	09250	07650	03800
598	173 480	34540	- 78310	-1 40210	- .08000	14350	04310	77970	08130	06760	04490
598	171 450	53180	- 83590	-1 51240	- .05540	22370	03550	71160	07300	04510	07820
498	169 550	76340	- 82520	-1 57980	- .00950	18770	- 02060	67030	01080	04360	06420
598	173 530	07250	- 45580	-1 26840	- .02970	01560	- 01880	1 07540	03530	08900	09160
GRADIENT		00000	00000	00000	00000	00000	00000	00000	03000	00000	00000

MSFC TMT604 (SABF) SRB WITH ALL PROTUBERANCES

( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5030	SQ.IN	XMRP	=	5	7210	IN.	XS
UREF	=	8000	IN	YMRP	=		0000	IN.	YS
EMPF	=	8000	IN	ZMRP	=		.0000	IN	ZS
SCALE	=						0055		

BETA	-	.000	PHI	-	.000
NOZZLE	-	.000			

### PARAMETRIC DATA

RUN NO.	50/ 0	RN/L =	6.31	GRADIENT	INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 49/ U RN/L = 6.73 GRADIENT INTERVAL = -5 00/ 5 0

[illegible]

MSFC TW76C4 (SABF) SRB WITH ALL PROTRUDANCES

(R14031) ( 10 JUL '5 )

## REFERENCE DATA

SREF =	5030 SQ IN.	XMRP =	5 7210 IN. XS
LREF =	8000 IN.	YMRP =	.0000 IN. YS
BREF =	8000 IN	ZMRP =	.0000 IN. ZS
SCALE =	.0055		

BET <sub>n</sub>	•	.000	PMI	•	.000
NOZZLE	•	.000			

### PARAMETRIC DATA

RUN NO.	107/ 0	QN/L = 6.98	GRADIENT INTERVAL = -5 00/ 5 00
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MACH	ALPHA	CNM	CLNM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.950	189.730	-84630	.89090	-2.65320	-0.4830	.01750	.00550	.66920	-0.1020	-	-1.0500
1.950	187.750	-57110	.78130	-2.56980	.04580	.20120	.00550	.69500	-0.8360	-	-.08810
1.950	.95.710	-40720	.72280	-2.50870	.03640	.09640	.00950	.72820	-0.7230	-	-.07300
1.950	183.650	-23600	.47240	-2.48560	-0.0100	.04270	.01710	.74670	-0.6730	-	-.06170
1.950	.181.610	-09220	.14200	-2.44500	.03730	-0.3640	.0.630	.70890	-0.6060	-	-.05580
1.950	179.630	.05690	-1.1700	-2.45010	.02740	.05750	.01260	.75100	-0.5320	-	-.05470
1.950	177.470	.16510	-4.7840	-2.44400	.00580	.03140	.0.090	.79420	-0.5450	-	-.05260
1.950	175.420	.32740	-7.1360	-2.45040	.03530	.04870	.00820	.76110	-0.5320	-	-.05470
1.950	173.310	.55720	-9.0200	-2.52160	.10740	.05460	.01380	.71540	-0.0510	-	-.05990
1.950	171.270	.78000	-.98750	-2.58200	.10630	.13720	.01660	.68660	-0.6840	-	-.07470
1.950	169.300	1.11520	-1.07870	-2.60970	.00280	.02830	.01610	.66230	-1.1680	-	-1.2390
1.950	179.520	.06940	-.22660	-2.37010	.03050	-0.0040	.01550	.84880	-0.6180	-	-.06520
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00700	.00000	.00000	.00000

RUN NO. 2 / 0 RM/L = 4.97 GRADIENT INTERVAL = -5 00 / 5 00

[illegible]

DATE 10 JUL 75

TABLED SOURCE DATA. MSFC TLT 604, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R14031) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP	=	5.7210 IN. XS
LREF	=	.8000 IN.	YMRP	=	.0000 IN. YS
BREF	=	.8000 IN.	ZMRP	=	.0000 IN. ZS
SCALE	=	.0055			

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO.	I / I	RN/L	GRADIENT INTERVAL	-5.00/	5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-08

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(RIH032) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = .45.000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 198/ 0 RN/L = 7 08 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	-9.610	-1.33720	-2.06590	.88330	-.02710	.25090	.00140	.45730	-.07500	-.08660	-.08590
3.480	-7.630	-.94900	-1.70340	.86500	-.03580	.19240	-.00240	.43700	-.07020	-.08560	-.08470
3.480	-5.590	-.62500	-1.19630	.84820	-.04750	.12070	.00780	.42720	-.06330	-.08340	-.08220
3.480	-3.550	-.39970	-.61510	.82930	-.04330	.14190	-.00790	.45790	-.06000	-.08040	-.08090
3.480	-1.480	-.20580	-.05940	.81890	-.04790	.13630	-.01960	.55980	-.05970	-.07950	-.08030
3.480	.550	.01910	.36630	.79850	-.03560	.08490	-.02180	-.97570	-.05720	-.08210	-.07970
3.480	2.600	.21120	.76590	.79810	-.00790	.03490	.00520	.28760	-.05570	-.08540	-.08140
3.480	4.640	.42120	1.25910	.79370	-.00560	-.05390	-.00430	.33950	-.05830	-.08580	-.08240
3.480	6.730	.70970	1.83810	.81030	.02050	-.13420	-.01150	.37210	-.06270	-.08630	-.08240
3.480	8.790	1.07810	2.30380	.82220	.05000	-.17290	.00100	.40900	-.06720	-.08730	-.08290
3.480	10.740	1.49570	2.75050	.82440	.07360	-.17657	-.00280	.43340	-.07010	-.08820	-.08500
3.480	.560	.03540	.38020	.80420	-.03590	.07460	-.01740	-.29150	-.05790	-.08370	-.08060
GRADIENT		10062	.22357	-.00450	.00564	-.02408	.00156	-.02477	.00036	-.00082	-.00021

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SR9 WITH ALL PROTUBERANCES

(RIH033) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5000 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = 45.000  
NOZZLE = .000

RUN NO. 184/ 0 RN/L = 6.94 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	31.890	7.24490	5.64000	1.16200	.28130	-.08400	-.06790	.51990	-.06960	-.05960	.08420
3.480	33.940	7.88820	6.11490	1.18690	.23900	-.11270	-.07190	.52010	-.07130	-.06270	-.08440
3.480	35.990	8.57450	6.60550	1.21400	.33370	-.09010	-.07950	.52050	-.07330	-.05910	-.08480
3.480	38.060	9.24450	7.02420	1.25240	.40140	-.06560	-.11140	.52140	-.07740	-.05390	-.08170
3.480	40.150	9.93870	7.39920	1.31530	.38230	-.05500	-.11020	.52260	-.07900	-.05010	-.07880
3.480	42.250	10.69350	7.80690	1.34050	.40340	-.04080	-.13060	.52380	-.08470	-.04330	-.07760
3.480	44.340	11.39920	8.19550	1.35880	.43930	-.04510	-.12900	.52470	-.08100	-.03970	-.08300
3.480	46.440	12.05720	8.65280	1.36070	.46560	-.05440	-.14280	.52420	-.06820	-.03770	-.08650
3.480	48.570	12.68330	9.25920	1.34230	.48390	-.00500	-.17040	.52380	-.06050	-.04000	-.06760
3.480	50.660	13.25100	9.92550	1.30420	.50090	.07440	-.18130	.52230	-.05440	-.04580	-.06660
3.480	52.630	13.81400	10.59230	1.27460	.52250	.02840	-.17310	.52040	-.06720	-.04510	-.07560
3.480	42.260	10.69730	7.86090	1.34290	.41060	-.03520	-.13680	.52320	-.08310	-.04350	-.07840
GRADIENT		.00000	.00000	.00000	.00000	.00000	.0000	.00000	.00000	.00000	.00000

(R1H034) ( 10 JUL 75 )

### PARAMETRIC DATA

BETA	=	.000	PHI	=	45.000
NOZZLE	=	.000			

SREF	-	.5030	50 IN.	XRRP	-	5.7210	IN.	XS
LREF	-	.8000	IN.	YRRP	-	.0000	IN.	YS
BREF	-	.8000	IN.	ZRRP	-	.0000	IN.	ZS

## REFERENCE DATA

SREF	=	.5030 SQ IN.	XMRP	=	5.7210 IN. XS
LREF	=	.8000 IN.	YMRP	=	.0000 IN. YS
BREF	=	8000 IN.	ZMRP	=	.0000 IN. ZS
SCALE	=	0055			

LIBF = 8000 IN. YMRP = .0000 IN. YS

BRF - 8000 IN. ZAPP - .0000 IN SZ

SCALE - 0055

RUN NO.	394 / 0	RH/L =	5.35	GRADIENT	INTERVAL =	-5.00 /	5.00
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[illegible]

RUN NO. 393/ 0    RN/L = 5.05    GRADIENT INTERVAL = -5.00/ 5.00

[illegible]



SCENARIOS WITH ALL PROTEGEES

MS. A.9.2.1.3.1

## REFERENCE DATA

SREF =	5030 SQ. IN.	XMRP =	5 7210 IN. XS
LREF =	8000 IN.	YMRP =	.0000 IN. YS
BREF =	8000 IN.	ZMRP =	.0000 IN. ZS
SCALE =	.0055		

392/ 0	RN/L =	6.38	GRADIENT INTERVAL =	-5.00/	5.00
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## PARAMETRIC DATA

BETA	=	.000	PHI	=	45 000
NOZZLE	=	.000			

[illegible]

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RIN NO.      391/ 0      RN/L =  6.79      GRADIENT INTERVAL =  -5.00/  5.00

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MACH	ALPHA	CMP	CLMP	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.193	70 620	18 22040	16.23920	.79620	1.36560	22170	- 29720	51070	00000	00000	00000
1.193	72 510	18.41780	15.86330	.82620	1.38210	.19260	- 30320	.51310	00000	00000	00000
1.193	74 430	18 53880	15 39130	.80250	1.41300	.20440	- 30830	51560	00000	00000	00000
1.193	76.470	18 70370	15.03680	.78500	1.46160	31530	- 29180	51190	00000	00000	00000
1.193	78 450	18 89710	14.59860	.87430	1.47150	35340	- 30640	52030	00000	00000	00000
1.193	80 430	19 12440	14.06540	.83240	1.45680	.53560	- 30370	52340	00000	00000	00000
1.193	82 430	19 31610	13.77550	.79110	1.44710	.64790	- 30910	52520	00000	00000	00000
1.193	84 390	19 50150	13.21720	.73750	1.43280	72760	- 32060	52810	00000	00000	00000
1.193	86 370	19 64780	12.72090	.66610	1.42190	80210	- 32410	53060	00000	00000	00000
1.193	88 350	19 60550	12.25000	.58070	1.42500	.80330	- 32410	53240	00000	00000	00000
1.193	90 230	19 53560	11 83730	.50210	1.41780	.92150	- 31900	53390	00000	00000	00000
1.193	80 430	19 11280	14.05920	.83130	1.45410	.52740	- 31160	52340	00000	00000	00000
GRADIENT		00000	00000	00000	.00000	.00000	00000	.00000	.00000	.00000	.00000

(RIH034) ( 10 JUL 75 )

MSFC TWT804 (SABF) SRB WITH ALL PROTRUBERANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS BETA = .000 PHI = +5.000  
 LREF = .8000 IN. YMRP = .0000 IN. YS NOZZLE = .000  
 BREF = 8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

RUN NO. 390/ 0 RN/L = 7.16 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
1.952	70.620	18.35860	14.84070	1.08530	.93820	.14170	-.25730	51740	.00000	.00000	.00000
1.952	72.490	18.56440	14.62840	1.03030	.95280	.15900	-.26090	51910	.00000	.00000	.00000
1.952	74.490	18.82480	14.49720	.97300	.96280	.22380	-.24800	52050	.00000	.00000	.00000
1.952	76.480	17.97300	14.12010	.91620	.98020	.21350	-.27040	52270	.00000	.00000	.00000
1.952	78.460	19.20840	13.92000	.86310	.99120	.20950	-.27370	52430	.00000	.00000	.00000
1.952	80.450	19.36570	13.65670	.79800	1.00760	.24350	-.27450	52540	.00000	.00000	.00000
1.952	82.460	19.54510	13.51690	.72360	1.01780	.29170	-.27340	52700	.00000	.00000	.00000
1.952	84.430	19.62110	13.25830	.65900	1.01420	.32870	-.27550	52820	.00000	.00000	.00000
1.952	85.410	19.69160	12.96190	.58160	1.00500	.44830	-.27880	52970	.00000	.00000	.00000
1.952	88.400	19.67420	12.55580	.49920	.99240	.49890	-.28220	53130	.00000	.00000	.00000
1.952	90.300	19.72280	12.27230	.41970	.98110	.57020	-.27570	53260	.00000	.00000	.00000
1.952	80.440	19.23250	13.50240	.78790	.99890	.26760	-.28010	52610	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 389/ 0 RN/L = 5.26 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	70.410	17.90170	13.62500	1.14430	.80720	.12840	-.26930	52130	.00000	.00000	.00000
2.740	72.310	18.30990	13.78950	1.09020	.83030	.15470	-.26360	52190	.00000	.00000	.00000
2.740	74.310	18.52410	13.67250	1.02450	.82410	.14100	-.27880	52320	.00000	.00000	.00000
2.740	76.310	18.81590	13.63760	.96740	.85550	.19740	-.27680	52420	.00000	.00000	.00000
2.740	78.300	19.03980	13.48280	.89250	.86990	.23040	-.27430	52560	.00000	.00000	.00000
2.740	80.290	19.21210	13.22190	.81510	.87590	.23650	-.28420	52720	.00000	.00000	.00000
2.740	82.300	19.27800	12.95520	.74350	.89940	.29800	-.26990	52850	.00000	.00000	.00000
2.740	84.280	19.53880	12.85280	.66220	.89690	.36060	-.28440	52970	.00000	.00000	.00000
2.740	86.270	19.520	12.58300	.58640	.89440	.41280	-.28360	53110	.00000	.00000	.00000
2.740	88.290	19.67920	12.21890	.49730	.86030	.52570	-.29470	53270	.00000	.00000	.00000
2.740	90.150	19.78160	12.01670	.41650	.85150	.64670	-.28720	53380	.00000	.00000	.00000
2.740	80.290	19.22890	13.25650	.83740	.88470	.26390	-.27170	52710	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA. MSFC TWT 604, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

( R1H034 ) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5030	SQ. IN.	XPRP	=	5.7210	IN.	XS
LFREF	=	.8000	IN.	YPRP	=	.0000	IN.	YS
TRREF	=	.8000	IN.	ZPRP	=	.0000	IN.	ZS
SCALE	=	.0055						

BETA = .000 PHI = 45.000  
NOZZLE = .000

### PARAMETRIC DATA

RUN NO.	388/ 0	RN/L =	7.18	GRADIENT INTERVAL =	-5.00/ 5.00
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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

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(RIH035) ( 10 JUL 75 )

MSFC TWT60, (SABF) SRB WITH ALL PROTRUDANCES

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

BETA = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 365/ 0 RN/L = 5.41 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.402	129 560	5 72200	-6.12200	-1.63200	-3.48040	-2.73040	-.23470	.67070	.00000	.00000	.00000
.402	127 670	6.27880	-6.05710	-1.54510	-3.51010	-1.96900	-.22460	.66210	.00000	.00000	.00000
.402	125 640	6.83630	-6.09640	-1.48130	-3.48840	-1.12180	-.26430	.65610	.00000	.00000	.00000
.402	123 640	7.05210	-5.87070	-1.36960	-3.54330	-1.42640	-.24580	.65130	.00000	.00000	.00000
.402	121 650	7.26060	-5.49460	-1.24380	-3.49680	-1.47720	-.23400	.64510	.00000	.00000	.00000
.402	119 630	7.93370	-5.63430	-1.13670	-2.94040	-.60600	-.31340	.64130	.00000	.00000	.00000
.402	117 620	8.23090	-5.03300	-1.01230	-2.59220	-.17340	-.33470	.63330	.00000	.00000	.00000
.402	115 630	8.35800	-3.98510	-.92240	-2.28620	.08760	-.32590	.62230	.00000	.00000	.00000
.402	113 650	8.58000	-3.91250	-.78960	-1.79630	-1.42860	-.27020	.62060	.00000	.00000	.00000
.402	111 630	8.95490	-3.38590	-.60480	-1.24700	-1.01310	-.29940	.61420	.00000	.00000	.00000
.402	109 750	9.44750	-2.09730	-.41330	-.71820	-.62720	-.34450	.60150	.00000	.00000	.00000
.402	119 630	7.77130	-5.80110	-1.12040	-3.00980	-1.51470	-.25610	.64430	.00000	.00000	.00000
GRADIENT		00000	00000	00000	.00000	.00000	00000	00000	.00000	.00000	.00000

RUN NO. 364/ 0 RN/L = 5.09 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLHM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.599	129 490	7.44600	-5.25870	-1.70760	-1.59340	-.24440	-.27670	.64100	.00000	.00000	.00000
.599	127 590	8.02260	-4.70460	-1.60050	-1.14800	-.22380	-.27410	.63120	.00000	.00000	.00000
.599	125 590	8.38250	-4.35560	-1.47070	-1.18850	-.33000	-.26210	.62580	.00000	.00000	.00000
.599	123 580	8.79110	-4.05520	-1.36370	-1.63750	-1.06530	-.28970	.62100	.00000	.00000	.00000
.599	121 580	9.25040	-4.05950	-1.26250	-1.26570	-.44220	-.29840	.61920	.00000	.00000	.00000
.599	119 570	9.63670	-3.92110	-1.12890	-.80340	-.63620	-.30200	.61660	.00000	.00000	.00000
.599	117 540	10.16380	-4.08960	-.98940	.43670	-1.91370	-.35400	.61620	.00000	.00000	.00000
.599	115 560	10.41740	-3.73990	-.83580	1.01850	-1.30930	-.35450	.61270	.00000	.00000	.00000
.599	113 570	10.72650	-3.18600	-.66430	1.24350	1.00500	-.35910	.60760	.00000	.00000	.00000
.599	111 570	11.05310	-2.87690	-.55450	1.40410	1.37240	-.36360	.60460	.00000	.00000	.00000
.599	109 670	11.29210	-2.52000	-.36490	1.73500	.64920	-.35150	.60160	.00000	.00000	.00000
.599	119 570	9.53720	-3.87520	-1.13180	-.82850	-.56070	-.34630	.61620	.00000	.00000	.00000
GRADIENT		00000	00000	.00000	.00000	.00000	00000	00000	.00000	.00000	.00000

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H035) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ. IN.	XMRP =	5.7210 IN. XS
LREF =	8000 IN.	YMRP =	0000 IN. YS
BREF =	8000 IN.	ZMRP =	.0000 IN. ZS
SCALE =	.0055		

### PARAMETRIC DATA

BETA = .000 PHI = 45.000  
NOZZLE = .000

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RUN NO. 363/ 0 RM/L = 6 42 GRADIENT INTERVAL = -5.00/ 5.00

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[illegible]

RRJN NO. 362/ 0 RM/L = 6.84 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

(RIM035) ( 10 JUL 75 )

MSFC TWT804 (SA8F) SRS WITH ALL PROTUBERANCES

PARAMETRIC DATA

REFERENCE DATA

BETA = .000 PHI = .000  
NOZZLE = .000

SREF = .0030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = .0000 IN. YMRP = .0000 IN. YS  
BREF = .0000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

RUN NO. 361/ 0 RN/L = 7.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.955	129 360	12.39260	3.60310	-1.89980	.96070	.95560	-.18940	.55970	.00000	.00000	.00000
1.955	127 440	13.09330	3.97690	-1.79940	1.00520	.97300	-.19670	.55960	.00000	.00000	.00000
1.955	125 430	13.77840	4.33250	-1.68550	1.04770	.91930	-.19720	.55770	.00000	.00000	.00000
1.955	123 430	14.35220	4.81440	-1.54840	1.06470	.94040	-.20310	.55600	.00000	.00000	.00000
1.955	121 420	14.87780	5.20320	-1.41590	1.11400	.96890	-.21130	.55480	.00000	.00000	.00000
1.955	119 430	15.32900	5.65410	-1.27260	1.15530	.99480	-.19880	.55220	.00000	.00000	.00000
1.955	117 400	15.88990	6.19310	-1.12550	1.18870	1.04650	-.22920	.55160	.00000	.00000	.00000
1.955	115 420	16.38930	6.50090	-.97540	1.22630	1.06250	-.23540	.55100	.00000	.00000	.00000
1.955	113 420	16.86260	7.02020	-.82540	1.25130	1.12530	-.22810	.54940	.00000	.00000	.00000
1.955	111 400	17.31910	7.33150	-.67170	1.29920	1.15430	-.22890	.54880	.00000	.00000	.00000
1.955	109 520	17.65240	7.76310	-.53390	1.32360	1.19140	-.24330	.54750	.00000	.00000	.00000
1.955	119 450	15.17280	5.84930	-1.26510	1.14180	1.03020	-.21810	.55140	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 360/ 0 RN/L = 5.29 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	129 520	11.91760	4.11860	-1.99540	.72100	.81620	-.17470	.55520	.00000	.00000	.00000
2.740	127 540	12.56840	4.63650	-1.85670	.86100	.86570	-.17560	.55330	.00000	.00000	.00000
2.740	125 620	13.22870	5.17310	-1.72160	.90520	.86830	-.06790	.55150	.00000	.00000	.00000
2.740	123 620	13.89550	5.68050	-1.57430	.93260	.88320	-.07920	.54990	.00000	.00000	.00000
2.740	121 620	14.44300	6.26660	-1.43300	.95860	.92660	-.16700	.54800	.00000	.00000	.00000
2.740	119 610	15.00900	6.48330	-1.26270	1.00770	.92400	-.19380	.54810	.00000	.00000	.00000
2.740	117 590	15.58470	6.89520	-1.10520	1.04490	.94130	-.19990	.54730	.00000	.00000	.00000
2.740	115 600	16.14190	7.09050	-.94870	1.07610	.95820	-.17070	.54750	.00000	.00000	.00000
2.740	113 590	16.64890	7.51020	-.80470	1.11300	.99530	-.21830	.54560	.00000	.00000	.00000
2.740	111 590	17.10250	7.83270	-.64330	1.14320	.99070	-.21570	.54600	.00000	.00000	.00000
2.740	109 650	17.55010	8.26610	-.50670	1.16310	1.02060	-.12550	.54490	.00000	.00000	.00000
2.740	119 610	14.99170	6.45900	-1.27230	1.00780	.93450	-.19470	.54820	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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PAGE

MSFC INT604 (SABF) SRS WITH ALL PROTRUDANCES

(A1H035) ( 10 JUL 75 )

## REFERENCE DATA

•	5030	SQ. IN.	•	Y4999	•	5.7210	IN. YS
•	8000	IN.	•	Y4999	•	.0000	IN. YS
•	8000	IN.	•	Z4999	•	.0000	IN. ZS
•	.0055	SCALE					

BETA	=	.000	PHI	=	.45 000
VITA	=	.000			
NOZZLE	=	.000			

### PARAMETRIC DATA

RUN NO.	389/ 0	RN/L =	7.23	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

NSFC TH1604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H036) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7213	IN. XS
LREF	=	.8000	IN.	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	45.000
NOZZLE	=	.000			

RUN NO. 92/ 0 RW/L = 5.20 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 91/ 0 AN/L = 4.95 GRADIENT INTERVAL = -5 °/ 5 00

[illegible]



MSFC TW1604 (SABF) SRB W/TH ALL PROTUBERANCES

( R14C38 ) ( 10 JUL 5 )

## REFERENCE DATA

SREF =	5030 SQ IN	YAPP =	5 7210 IN. YS
LMRF =	6000 IN	YAPP =	.0000 IN. YS
BRFL =	6000 IN.	ZAPP =	.0000 IN. ZS
SCALE =	755		

### PARAMETRIC DATA

BETA = .000 PHI = .45 000  
NOZZLE = .000

RUN NO. 90/ 0 RM/L • 6.20 GRADIENT INTERVAL • -0.00/ 5.00

[illegible]

RUN NO. 89/ 0 RN/L = 8 68 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TH: 604, SA-08

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MSFC TW1604 (SABF) SRB WITH ALL PROTEUBERANCES

(R1H036) ( 10 JUL 75 )

## REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN XS  
LREF = 8000 IN YMRP = .0000 IN. YS  
BREF = 8000 IN ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

ETA = .000 PHI = .45.000  
NOZZLE = .000

RUN NO. 96/ 0 RN/L = 7.08 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.947	168 850	89210	-1.26740	-2.58030	-12300	-40710	-01350	.69930	-11250	-110570	-111480
1.947	166 850	1.26470	-1.32210	-2.60320	-11850	-43700	-01320	.66730	-113550	-11690	-12940
1.947	164 710	1.78420	-1.50050	-2.63790	.06880	-01170	-02880	.65200	-14340	-12790	-14040
1.947	162 570	2.36530	-1.64910	-2.71380	.20130	.33220	-02950	.64020	-15280	-13600	-14870
1.947	160 420	3.04680	-1.49340	-2.77010	.21430	.54400	-03160	.62340	-16650	-15380	-16690
1.947	158 270	3.84960	-1.98010	-2.81260	.18630	1.38160	-03700	.60410	-19370	-18470	-19290
1.947	156 110	4.58510	-4.7810	-2.82750	.25470	1.38160	-04400	.59190	-20440	-19660	-20030
1.947	153 990	5.32460	-1.15080	-2.83370	.27360	.92180	-05680	.58570	-21290	-20350	-22300
1.947	151 780	6.01410	-1.13500	-2.85790	.30040	.39500	-07750	.58520	-21440	-21370	-21560
1.947	149 710	6.53290	.16770	-2.79660	.40800	.53720	-07110	.58130	-21160	-21160	-21430
1.947	147 660	7.21970	.40560	-2.77430	.46660	.56980	-08350	.57880	-21750	-21900	-21900
1.947	158 330	3.80800	-52130	-2.73270	.16830	1.39320	-04280	.59450	-19490	-18770	-19300
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 22/ 0 RN/L = 5.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	168 990	87000	-71630	-2.50280	-01720	-09170	-03660	.65050	-10670	-10360	-10510
2.740	167 040	1.23530	-1.60550	-2.59170	-00450	.76770	-05260	.62730	-1093	-10810	-10560
2.740	164 980	1.4590	-1.1130	-2.62630	.00700	.21560	-06800	.60780	-11280	-11270	-11270
2.740	162 920	2.12830	-1.40540	-2.64210	.10720	.32100	-02240	.59890	-11690	-11720	-11690
2.740	160 850	2.68370	-1.19300	-2.67710	.10060	.47400	-06570	.58320	-12010	-11990	-11990
2.740	158 780	3.19090	-03570	-2.69600	.15150	.43960	-06110	.56430	-12160	-12160	-12180
2.740	156 710	3.75010	.08430	-2.71780	.18840	.28480	-06140	.58150	-12140	-12100	-12030
2.740	154 630	4.32710	.25440	-2.73380	.23910	.24950	-05690	.57860	-12220	-12140	-12000
2.740	152 530	4.95370	.4389	-2.74560	.29410	.35870	-05280	.57610	-12540	-12150	-11870
2.740	150 450	5.58540	.6197	-2.74920	.34390	.38120	-07260	.57430	-13050	-12120	-11770
2.740	148 480	6.23160	.73940	-2.72620	.36530	.33560	-10030	.57370	-13560	-11860	-11440
2.740	158 770	3.22670	-09360	-2.69020	.16170	.40950	-05680	.58570	-11990	-11940	-11580
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC 1WT604 (S48F) SRS WITH ALL PROUBERANCES

(R1H036) : 10 JUL 75 )

## REFERENCE LIST

SREF =	.5030	5J	IN	YMRP =	5.7210	IN	XS
LRF =	.8000	IN		YMRP =	.0000	IN	YS
BRF =	.8000	IN		ZMRP =	.0000	IN	ZS
SCALE =	.0055						

BETA = .000 PHI = 45.000  
NOZZLE = .000

### PARAMETRIC DATA

RUN NO. 21/3 AN/L = 7.12 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

~~REF~~ THIS04 (SABF) SR8 WITH ALL PROTUBERANCES

## REFERENCE DATA

SRF	=	.5030	SQ. IN.	YARP	=	5.7210	IN. YS
REF	=	.8000	IN.	YARP	=	.0000	IN. ZS
SRF	=	.8000	IN.	ZARP	=	.0000	IN. ZS
SCALF	=	.0055					

199/ 0	7.09	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

BRIN NO. 200/ 0 RN/L = 5.67 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	-9.480	-1.28760	-1.55440	.70800	-.05200	.15570	.05410	.48330	-.04180	-.04740	-.04320
4.450	-7.550	-.95010	-1.36240	.67210	-.04840	.22780	.08060	.46620	-.04820	-.04820	-.04540
4.450	-5.520	-.60960	-1.04170	.63830	.02230	.19560	.02770	.44400	-.03970	-.04600	-.04600
4.450	-3.500	-.40200	-.76690	.55540	-.03500	.20060	.03700	.42780	-.03890	-.04800	-.04580
4.450	-1.470	-.17520	-.29330	.64840	.01970	.24250	.03140	.44680	-.03690	-.04800	-.04600
4.450	.550	.12170	.19620	.62730	-.06790	.22270	.03320	.45180	-.03610	-.04820	-.04520
4.450	2.570	.26550	.49170	.63740	-.06910	.24000	-.01260	.43230	-.03690	-.04910	-.04420
4.450	4.590	.46930	.83970	.52910	-.08730	.13680	-.04810	.43740	-.03730	-.04950	-.04420
4.450	6.640	.78940	1.31480	.63050	-.10160	.20950	-.01130	.44750	-.03870	-.04960	-.04420
4.450	8.670	1.10710	1.54400	.65220	-.10150	.15570	-.03460	.46960	-.04100	-.05030	-.04500
4.450	10.000	1.45810	1.69370	.69570	-.11410	.13780	-.09690	.48860	-.04220	-.05110	-.04540
4.450	12.000	.09060	.17210	.61400	-.03450	.18300	-.01980	.42840	-.03890	-.04990	-.04620
4.450	14.000	.00788	.19775	-.00315	-.00956	.10054	-.01059	.00024	-.00016	-.00020	-.00025

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MSFC THT604 (SABF) SR9 WITH ALL PROTRUSANCES

(R1H038) ( 10 JUL 75 )

### PARAMETRIC DATA

BETA	=	.000	PHI	=	90.000
NOZZLE	=	.000			

RUN NO.	194 / 0	RN/L = 5.63	GRADIENT INTERVAL = -5.00 / 5.00
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[illegible]

(R1H039) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030 SQ. IN.	XMRP =	5.7210 IN. X5
LREF =	.8000 IN.	YMRP =	.0000 IN. Y5
BREF =	.8000 IN.	ZMRP =	.0000 IN. Z5
SCALE	.0055		

### PARAMETRIC DATA

BETA = 000 PHI = 90.000  
NOZZLE = .000

RUN NO. 181/ 0 RM/L = 6.95 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 186/ 0    RN/L = 5.52    GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

## REFERENCE DATA

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SREF  = 5030 SQ. IN. XMRP = 5.7210 IN. XS
LREF  = 8000 IN. YMRP = .0000 IN. YS
BREF  = 8000 IN. ZMRP = .0000 IN. ZS
SCALE = .0055

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FIN NO.	395/ 0	RN/L = 5 38	GRADIENT INTERVAL = -5.00/ 5.00
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MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.395	70.280	9.88060	10.69700	.0467C	.25290	-1.39180	-.06280	.49340	.00000	.00000	.00000
.395	72.170	10.43960	11.27790	.09640	.36740	-1.57190	-.02830	.49170	.00000	.00000	.00000
.395	74.200	10.53480	12.45500	.04930	.32680	2.05540	-.06030	.48690	.00000	.00000	.00000
.395	76.210	10.79200	2.92010	.11530	-.64570	2.98610	-.06810	.48570	.00000	.00000	.00000
.395	78.190	11.32510	13.11690	.14360	-.59790	3.03040	-.09700	.48890	.00000	.00000	.00000
.395	80.120	11.51170	12.01730	.32040	-.25730	2.20710	-.02630	.49810	.00000	.00000	.00000
.395	82.190	11.54280	11.70390	.22220	-.42140	1.19280	-.03470	.50070	.00000	.00000	.00000
.395	84.160	11.45570	10.18170	.35270	.06920	.48250	-.07880	.51090	.00000	.00000	.00000
.395	86.140	11.65450	8.21660	.58360	.36820	-1.03630	-.01670	.52590	.00000	.00000	.00000
.395	88.120	11.65160	6.72830	.00290	.02390	-1.81110	-.02860	.53630	.00000	.00000	.00000
.395	90.000	11.81590	5.89210	.80350	.30990	-1.18660	.01200	.54270	.00000	.00000	.00000
.395	90.190	11.32870	11.67950	.23960	-.03790	2.55220	-.04830	.49930	.00000	.00000	.00000
GRADIENT		.00000		.00000	.00000		.00000	.00000	.00000	.00000	.00000

RUN NO. 396 / 0 RN/L = 5.14 GRADIENT INTERVAL = -5.00 / 5.00

MACH	ALPHA	CNM	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CMP2	CBP3
.595	70.380	12.49750	15.62810	.01630	-.69770	1.02000	-.09080	.48140	.00000	.00000	.00000
.595	72.270	12.58020	15.37500	.05470	-.105810	.53970	-.7620	.48370	.00000	.00000	.00000
.595	74.290	12.66260	14.92050	.10920	-.106000	-.98350	-.11380	.48720	.00000	.00000	.00000
.595	76.290	12.79160	15.11230	.09160	-.70120	.53540	-.10700	.48700	.00000	.00000	.00000
.595	78.270	12.64450	14.33860	.17230	-.76480	.59250	-.10490	.45090	.00000	.00000	.00000
.595	80.230	12.60250	12.06610	.40180	-.76980	.81830	-.14140	.50530	.00000	.00100	.00000
.595	82.210	12.71420	10.91830	.50260	-.58230	.64210	-.14840	.51330	.00000	.00000	.00000
.595	84.190	12.87380	9.97030	.57410	-.46940	-.10050	-.12520	.52020	.00000	.00000	.00000
.595	86.160	13.12150	8.71260	.68510	-.23140	-.63100	-.11050	.52920	.00000	.00000	.00000
.595	88.130	13.12170	7.18940	.81120	-.54520	-.84350	-.11620	.53870	.00000	.00000	.00000
.595	90.010	13.14450	6.15620	.90900	-.72270	-.131670	-.08580	.54520	.00000	.00000	.00000
.595	90.210	12.56690	12.11670	.41130	-.76950	.96380	-.12920	.50480	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000		.00000	.00000	.00000		.00000	.00000



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SR8 WITH ALL PROTRUDANCES

(RIM040) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = .0055

BETA = .070 PHI = 90.000  
NOZZLE = .009

PARAMETRIC DATA

RUN NO. 397/ 0 RN/L = 6.53 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.899	70 620	15.45410	17.93710	.32180	-.31370	-.00840	-.09900	.48870	.00000	.00000	.00000
.899	72 470	15.50220	17.23210	.45910	-.33290	.09880	-.09830	.49270	.00000	.00000	.00000
.899	74 470	15.61920	16.46040	.58970	-.35340	.04980	-.11580	.49740	.00000	.00000	.00000
.899	76 430	15.78710	15.47250	.64150	-.30000	-.13430	-.10240	.50340	.00000	.00000	.00000
.899	78 400	15.94520	14.46920	.66800	-.22320	-.31760	-.12170	.50930	.00000	.00000	.00000
.899	80 360	16.08520	13.50810	.70170	-.23400	-.13880	-.13800	.51490	.00000	.00000	.00000
.899	82 330	16.19610	12.48460	.70550	-.26670	.05890	-.12500	.52050	.00000	.00000	.00000
.899	84 300	16.31330	11.64900	.70410	-.26040	.16940	-.12260	.52510	.00000	.00000	.00000
.899	86 260	16.43910	10.55240	.77320	-.28790	.27250	-.12400	.53100	.00000	.00000	.00000
.899	88 220	16.74730	9.20240	.86110	-.32110	.27910	-.11770	.53850	.00000	.00000	.00000
.899	90 090	16.75220	8.21050	.82990	-.33730	.27010	-.12670	.54350	.00000	.00000	.00000
.899	80 370	16.26010	13.57490	.71820	-.24310	-.09510	-.10980	.51530	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 398/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.196	70 580	18.59980	15.74850	.89480	-.32460	.36870	-.12790	.51430	.00000	.00000	.00000
1.196	72 460	18.83070	15.29930	.90600	-.32060	.40110	-.11780	.51710	.00000	.00000	.00000
1.196	74 460	19.03790	14.93470	.92900	-.32550	.39120	-.12710	.51940	.00000	.00000	.00000
1.196	76 440	19.10860	14.50610	.91410	-.31410	.34190	-.12720	.52140	.00000	.00000	.00000
1.196	78 430	19.24740	14.08610	.89020	-.32010	.30090	-.10800	.52370	.00000	.00000	.00000
1.196	80 410	19.46220	13.75650	.83860	-.32400	.33680	-.12530	.52570	.00000	.00000	.00000
1.196	82 420	19.66150	13.50240	.79170	-.34050	.39100	-.12350	.52730	.00000	.00000	.00000
1.196	84 370	19.80830	12.88240	.74980	-.37500	.48220	-.11760	.53030	.00000	.00000	.00000
1.196	86 340	19.90290	12.19680	.68260	-.38690	.56570	-.13300	.53340	.00000	.00000	.00000
1.196	88 350	19.97630	11.87390	.59330	-.36750	.64810	-.11890	.53490	.00000	.00000	.00000
1.196	90 230	19.90620	11.47520	.52000	-.39960	.61700	-.11600	.53630	.00000	.00000	.00000
1.196	80 410	19.41000	13.70400	.83570	-.32990	.30180	-.13510	.52580	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRR WITH ALL PROTRUBANCES

(R1H040) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ IN.	XMRP =	5.7210 IN. XS
LREF =	8000 IN.	YMRP =	.0000 IN. YS
BREF =	8000 IN.	ZMRP =	.0000 IN. ZS
SCALE =	.0055		

BETA	-	000	PHI	-	90 000
NOZZLE	-	.000			

### PARAMETRIC DATA

RUN NO. 398/ 0 RM/L = 7.37 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RM/L	5.42	GRADIENT INTERVAL	-5.00/ 5.00
------	------	-------------------	-------------

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP-2	CBP-3
70 360	12 29330	18 02930	12 35790	1.13790	- .31040	.33720	- 10850	52750	00000	00000	00000
72 280	18 36210	18 36210	12 46570	1 08430	- .31620	.30910	- 09150	52800	00000	00000	00000
74 280	18 69100	18 69100	12 49430	1 02010	- .31350	.23750	- 11950	52830	00000	00000	00000
76 270	18 95080	18 95080	12 50780	95540	- .30930	.27180	- 11000	52950	00000	00000	00000
78 270	19 22830	19 22830	12 45180	87630	- .31390	.24720	- 12120	53050	00000	00000	00000
80 270	19 43750	19 43750	12 35910	80570	- .32740	.21530	- 12260	53150	00000	00000	00000
82 260	19 73150	19 73150	12 34860	72260	- .31480	.21370	- 11040	53230	00000	00000	00000
84 260	19 78290	19 78290	12 09500	64180	- .31100	.19690	- 11090	53350	00000	00000	00000
86 250	19 86940	19 86940	11 87020	56870	- .30710	.18970	- 09410	53460	00000	00000	00000
88 260	19 87040	19 87040	11 57390	49580	- .32040	.18020	- 08830	53590	00000	00000	00000
90 130	19 92210	19 92210	11 35610	40630	- .31290	.22520	- 09650	53690	00000	00000	00000
80 270	19 45460	19 45460	12 41600	.80600	- .31910	.23130	- 09790	53130	00000	00000	00000
GRADIENT		00000	00000	00000	.00000	.00000	00000	00000	00000	00000	00000

(RIH040) ( 10 JUL 75 )

MSFC THT604 (SABF) SRB WITH ALL PROTUBERANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LMRF = .0000 IN. YMRP = .0000 IN. YS  
BRMF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

BETA =  
NOZZLE =

.000 PHI = 90.000  
.000

RUN NO. 4017 0 PH/L = 7 42 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYN	CYNM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	70 400	17.61030	12.44750	1.14770	-.28220	.29220	-.09650	.52570	.00000	.00000	.00000
3.480	72 280	17.93600	12.62230	1.08370	-.28780	.26550	-.09130	.52600	.00000	.00000	.00000
3.480	74 300	18.28130	12.72990	1.02740	-.28500	.24780	-.10240	.52660	.00000	.00000	.00000
3.480	76 300	18.54730	12.71510	.95920	-.28140	.22990	-.09250	.52740	.00000	.00000	.00000
3.480	78 300	18.82910	12.71090	.89120	-.28600	.20660	-.09770	.52830	.00000	.00000	.00000
3.480	80 290	19.03800	12.56840	.82400	-.27730	.20060	-.09730	.52950	.00000	.00000	.00000
3.480	82 280	19.21450	12.40010	.74490	-.27730	.17520	-.10410	.53070	.00000	.00000	.00000
3.480	84 280	19.34480	12.15270	.67570	-.29670	.14090	-.10790	.53210	.00000	.00000	.00000
3.480	86 270	19.41680	11.83960	.61180	-.29140	.14550	-.09100	.53360	.00000	.00000	.00000
3.480	88 270	19.48940	11.48450	.53320	-.29430	.12480	-.08580	.53530	.00000	.00000	.00000
3.480	90 150	19.53550	11.18160	.45120	-.29710	.16310	-.07560	.53660	.00000	.00000	.00000
3.480	80 290	19.02190	12.57530	.83170	-.28220	.18060	-.10440	.52940	.00000	.00000	.00000
GRADIENT		00000	00000	00000	.00000	00000	.00000	00000	00000	00000	.00000

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(P14041) (10 JUL 75)

## REFERENCE DATA

SREF	=	5030 SQ IN.	XMRP	=	5.7210 IN.	XS
LREF	=	4000 IN.	YMRP	=	.0000 IN.	YS
BREF	=	8000 IN.	ZMRP	=	.0000 IN.	ZS
SCALE	=	.0055				

BETA	=	.000	PHI	=	90 000
NOZZLE	=	000			

### PARAMETRIC DATA

RUN NO. 317/ 0 RM/L = 5.39 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

RUN NO. 316/ 0 RN/L = 5 06 GRADIENT INTERVAL = 5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP.L	CBP1	CBP2	CBP3
599	109 850	12 09890	147.0	- 41270	.93910	1.06260	- .04310	58240	30000	00000	00000
599	107 950	12 31840	.43510	- 26390	83350	1 03820	- .06820	58050	30000	00000	00000
599	105 930	12 48950	54900	- .08F10	96940	93530	- 0.7670	57950	00000	00000	00000
599	103 940	12 60400	.71790	07050	.72780	53100	- .13110	57470	00000	00000	00000
599	101 960	12 68920	1 18660	25140	.45950	22560	-.08720	57570	00000	00000	00000
599	99 970	12 86640	1 72480	54090	.47200	.43300	- .08350	57240	00000	00000	00000
599	97 980	12 98900	2 34450	73810	.71250	86630	- .04840	56360	00000	00000	00000
599	95 990	13 00350	2 74730	12980	.78350	78350	- .04730	56610	00000	00000	00000
599	93 980	13 08430	3 26950	1 07460	- .08320	83610	- .01510	56300	00000	00000	00000
599	92 120	13 22950	4 49170	1 16480	.08470	17230	- .06880	55570	00000	00000	00000
599	90 140	13 15740	5 28890	1 20910	02020	24180	-.01560	55060	00000	00000	00000
599	99 970	12 91250	1 70170	51960	.49930	.40810	-.08290	57260	00000	00000	00000
599	99 970	12 91250	1 70170	51960	.49930	.40810	-.08290	57260	00000	00000	00000

(RIH041) ( 10 JUL 75 )  
MSFC TWT604 (SABF) SRB WITH ALL PROTEGERANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS BETA = 90.000  
LREF = 8000 IN YMRP = 0000 IN. YS NOZZLE = 000  
BREF = 8000 IN ZMRP = 0000 IN. ZS  
SCALE = 0055

RUN NO. 315/ 0 RN/L = 6.38 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
896	109 610	15.34850	-1.22000	-3.30200	-1.12370	1.51530	-0.7430	.58990	.00000	.00000	.00000
896	107 720	15.53950	-6.6590	-1.14080	-1.1520	1.47130	-0.6800	.58690	.00000	.00000	.00000
896	105 720	15.70280	.08620	.03520	-0.04480	1.24690	-0.4420	.58290	.00000	.00000	.00000
896	103 740	15.78410	.82590	.19040	.02710	.99170	-0.6170	.57910	.00000	.00000	.00000
896	101 790	15.94230	1.77010	.32390	.02480	.87770	-0.4940	.57430	.00000	.00000	.00000
896	99 830	16.11650	3.00110	.47910	.06390	.75960	-0.4570	.56820	.00000	.00000	.00000
896	97 870	16.29740	4.39520	.63380	.06500	.58250	-0.2940	.56140	.00000	.00000	.00000
896	95 910	16.33350	5.55430	.77240	.11350	.48090	-0.2670	.55560	.00000	.00000	.00000
896	93 920	16.50670	6.77570	.86280	.14390	.39620	-0.3080	.54990	.00000	.00000	.00000
896	91 960	16.55410	7.53900	.93360	.15760	.39490	-0.3390	.54620	.00000	.00000	.00000
896	90 090	16.64950	8.34320	.98070	.16110	.43300	-0.6230	.54250	.00000	.00000	.00000
896	99 820	16.14920	3.04600	.45200	.07010	.76510	-0.0520	.56800	.00000	.00000	.00000
GRADIENT		00000	00000	00000	.00000	00000	00000	00000	.00000	.00000	.00000

RUN NO. 314/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 196	109 720	18.22310	6.17290	-5.8420	-0.2040	1.07400	-0.8330	.55570	.00000	.00000	.00000
1 196	107 840	18.56950	6.89340	-4.3260	-0.1910	1.11190	-0.9020	.55310	.00000	.00000	.00000
1 196	105 840	18.84400	7.64410	-2.8600	-0.00580	1.13910	-0.7700	.55030	.00000	.00000	.00000
1 196	103 860	19.09150	8.29030	-1.4860	-0.0100	1.06580	-0.6960	.54790	.00000	.00000	.00000
1 196	101 860	19.26980	8.60890	-0.01930	-0.00480	1.03620	-0.6800	.54700	.00000	.00000	.00000
1 196	99 880	19.45170	8.69530	.11900	.02420	1.02710	-0.7340	.54690	.00000	.00000	.00000
1 196	97 100	19.65380	9.24370	.25630	.02440	.97100	-0.7420	.54500	.00000	.00000	.00000
1 196	95 920	19.76840	9.75020	.37470	.05460	.95110	-0.6820	.54320	.00000	.00000	.00000
1 196	93 910	19.83310	10.19900	.49300	.09190	.89160	-0.7470	.54140	.00000	.00000	.00000
1 196	91 950	19.91710	10.58800	.59290	.11080	.89750	-0.7780	.54000	.00000	.00000	.00000
1 196	90 070	19.93230	11.14140	.68710	.10840	.91940	-0.8960	.53780	.00000	.00000	.00000
1 196	99 890	19.38530	8.75160	.11490	.03490	1.02590	-0.6650	.54650	.00000	.00000	.00000
GRADIENT		00000	00000	00000	.00000	00000	00000	00000	.00000	.00000	.00000

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F (RIMON) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

REFERENCE DATA  
SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = 0000 IN YS  
BREF = 8000 IN ZMRP = 0000 IN ZS  
SCALE = 0055

BETA = .000 PHI = 90.000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 308/ 0 RN/L = 7 17 GRADIENT INTERVAL = -5 00/ 5 00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1
1.948	109 790	18 38360	8 41220	- .58870	.07840	78160	- .05650	.54540	.00000
1.948	107 890	18 52390	8 80560	- .46180	.09370	77460	- .05280	.54460	.00000
1.948	105 880	18 92380	9 26780	- .33010	.10260	80820	- .06630	.54340	.00000
1.948	103 900	19 32870	9 72360	- .20920	.10120	79180	- .06440	.54230	.00000
1.948	101 910	19 66350	10 15880	- .07800	.11130	77310	- .06240	.54120	.00000
1.948	99 920	20 00400	10 60160	.04860	.11610	73320	- .05490	.54010	.00000
1.948	97 930	20 32370	11 08090	.17100	.12510	70620	- .05620	.53890	.00000
1.948	95 950	20 62050	11 54930	.29490	.13470	70260	- .05860	.53750	.00000
1.948	93 940	20 70200	11 95770	.40220	.14540	68580	- .06310	.53620	.00000
1.948	91 970	20 82220	12 37170	.50510	.15710	63870	- .04710	.53490	.00000
1.948	90 040	20 92550	12 77060	.59450	.17400	61830	- .04430	.53360	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000

GRADIENT

RUN NO. 307/ 1 RN/L = 5.23 GRADIENT INTERVAL = -5 00/ 5 00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1
2.740	109 890	17 60800	8 32430	- .57690	.08210	57340	- .04000	.54480	.00000
2.740	107 990	17 99390	8 80010	- .43800	.10130	58340	- .03250	.54350	.00000
2.740	105 970	18 40820	9 24780	- .31460	.10330	.60560	- .02540	.54240	.00000
2.740	104 000	18 73340	9 71150	- .18070	.09610	.62460	- .03450	.54110	.00000
2.740	102 040	19 06860	10 11520	- .05400	.09050	.62320	- .03590	.54010	.00000
2.740	100 010	19 34570	10 51840	.06870	.10180	.61660	- .02660	.53880	.00000
2.740	98 020	19 57180	11 06790	.18020	.10460	.58600	- .03160	.53720	.00000
2.740	96 030	19 74600	11 44170	.29280	.11690	.57990	- .01060	.53610	.00000
2.740	94 020	19 86870	11 79810	.39510	.12090	.56000	- .01040	.53490	.00000
2.740	92 040	20 00740	12 05890	.48330	.11650	.59050	- .03100	.53420	.00000
2.740	90 150	20 16050	12 36600	.57850	.14790	.54320	- .04920	.53310	.00000
2.740	100 010	19 32920	10 57530	.05900	.11080	.60810	- .02630	.53870	.00000
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

GRADIENT

IR1H042) 1 10 JUL 75 )

## REFERENCE DATA

SREF =	5030	50	IN	XRRP =	5	7210	IN	XS
LREF =	8000	IN		YRRP =	0000	IN	YS	
BREF =	8000	IN		ZRRP =	0000	IN	ZS	
SCALE =	0055							

BETA - 000 PM1 - 90.000  
NOZZLE - 000

PARAMETER: DATA

RUN NO 310/ 0 RN/L = 5.36 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 311/ 0 RM/L • 5.06 GRADIENT INTERVAL • -5 00/ 5 00

[illegible]





DATE 10 JUL 75

TADULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTEUBERANCES

(R1H0+2) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = .0000 IN. YS  
BREF = .0000 IN ZMRP = .0000 IN. ZS  
SCALE = .0055

PARS-METRIC DATA

BC\*A  
MU/ZLE = 90.000  
000 PHI = 000

RUN NO. 309/ 0 RN/L = 7 19 GRADIENT INTERVAL = .5.00/ 5.00

MACH	ALPHA	CNM	CLNM	CA	CYN	CYNN	CB	XCP/L	CBP1	CBP2	CBP3
1.944	129 360	12 60190	3 20	-1.91010	01510	46730	-0.4390	55050	00000	00000	00000
1.944	127 450	13 29060	4 20	-1.79640	11350	49600	-0.4940	55720	00000	00000	00000
1.944	125 440	13 92700	4 50010	-1.68080	01270	53860	-0.4560	55650	00000	00000	00000
1.944	123 420	14 65110	4 96570	-1.56800	01620	59920	-0.4430	55570	00000	00000	00000
1.944	121 400	15 26560	5 23800	-1.45910	02180	62860	-0.4650	55540	00000	00000	00000
1.944	119 410	15 76910	5 84170	-1.35550	00750	64260	-0.4690	55710	00000	00000	00000
1.944	117 380	16 45340	5 37670	-1.25660	00580	59800	-0.4530	55370	00000	00000	00000
1.944	115 390	16 96500	6 45420	-1.15930	04120	65550	-0.5140	55210	00000	00000	00000
1.944	113 370	17 33220	6 89670	-1.06000	05530	66710	-0.4980	55100	00000	00000	00000
1.944	111 390	17 87670	7 36570	-0.93500	06930	69310	-0.4810	54980	00000	00000	00000
1.944	109 510	18 36050	7 96150	-0.84900	07650	74540	-0.5440	54800	00000	00000	00000
1.944	107 440	15 52820	5 03930	-1.29300	00930	58030	-0.4360	55160	00000	00000	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 306/ 0 RN/L = 5 22 GRADIENT INTERVAL = .5.00/ 5.00

MACH	ALPHA	CNM	CLNM	CA	CYN	CYNN	CB	XCP/L	CBP1	CBP2	CBP3
2.740	129 360	12 05590	4 22420	-2.01090	06740	36650	-0.0970	55480	00000	00000	00000
2.740	127 620	12 74360	4 68180	-1.51550	06940	38670	-0.1400	55340	00000	00000	00000
2.740	125 610	13 40440	5 15460	-1.73630	07910	42330	-0.2100	55200	00000	00000	00000
2.740	123 610	13 99470	5 61230	-1.56810	06070	45020	-0.0820	55070	00000	00000	00000
2.740	121 600	14 61870	5 97040	-1.43670	06520	50840	-0.1460	55010	00000	00000	00000
2.740	119 600	15 19660	5 31690	-1.27140	06900	50710	-0.2790	54940	00000	00000	00000
2.740	117 440	15 73670	6 55510	-1.10270	09000	50250	-0.0210	54890	00000	00000	00000
2.740	115 440	16 30710	6 96180	-0.92440	10260	51230	-0.1140	54850	00000	00000	00000
2.740	113 480	16 01010	7 31690	-0.79790	09610	57320	-0.1850	54790	00000	00000	00000
2.740	111 480	17 26220	7 70320	-0.64710	09910	58340	-0.2720	54700	00000	00000	00000
2.740	109 480	17 71500	8 13220	-0.51910	11070	57430	-0.3480	54590	00000	00000	00000
2.740	107 480	15 17670	5 31350	-1.26950	08710	47970	-0.0060	54540	00000	00000	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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DATE 16 JUL 75

TABLET SOURCE DATA. MSFC TWT 904, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(A1H042) ( 10 JUL 75 )

REFERENCE DATA

SREF =	.5030	SQ. IN.	XREF
LREF =	.0000	IN.	YREF
BREF =	.0000	IN.	ZREF
SCALE =	.0055		

BETA	=	.000	PHI	=	90.000
NOZZLE	=	.000			

## PARAMETRIC DATA

RUN NO. 305/ 0 RN/L = 7.17 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

PAPINETRIC DATA

BETA = .000 PHI = 90.000  
 NOZZLE = .000

RUN NO. 44/ 0 RN/L = 5.17 GRADIENT INTERVAL = .00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.392	149.810	3.19630	-1.79100	-2.09360	-.08790	.99100	.04010	.62910	-.34600	-.08440	-.07690
.392	146.870	3.67370	-2.21820	-2.09820	-.31740	.96810	.00080	.63260	-.41200	-.11410	-.10280
.392	144.830	4.02380	-2.50920	-2.06160	-.36280	.77870	.01050	.63420	-.47280	-.13770	-.10640
.392	142.790	4.50350	-3.14220	-1.96880	-.37980	1.11630	.01760	.64030	-.54460	-.19470	-.13650
.392	140.750	4.73460	-3.50680	-1.91170	-.31880	.97640	.02820	.64380	-.61580	-.23640	-.16000
.392	138.740	5.04980	-3.82970	-1.88450	-.35380	1.01470	.01830	.64520	-.74330	-.29990	-.19030
.392	136.700	5.19540	-4.22240	-1.81750	-.39430	.75760	.00940	.64970	-.93140	-.36160	-.23270
.392	134.700	5.32440	-4.66840	-1.78910	-.40110	.47050	-.00860	.65490	-.11520	-.44600	-.28880
.392	132.650	5.37630	-5.06990	-1.76370	-.35910	.51780	-.02580	.66030	-.13910	-.45910	-.33020
.392	130.650	5.48890	-5.50980	-1.69280	-.00310	-.76540	.00160	.66670	-.15770	-.52190	-.37170
.392	128.760	5.58820	-5.77940	-1.63330	-.09530	-1.07000	.03690	.66770	-.17600	-.55070	-.40670
.392	138.750	4.88250	-3.75330	-1.89260	-.28900	.62970	.01260	.64610	-.73230	-.31410	-.19390
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 43/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.599	148.670	3.48500	-2.01650	-2.12200	-.56110	2.63030	-.02550	.63060	-.24270	-.08770	-.07170
.599	146.720	3.90860	-2.25780	-2.08430	-.80690	3.42560	.00820	.63050	-.29550	-.11770	-.09730
.599	144.660	4.31250	-2.73700	-2.02280	-1.20040	2.04770	.01980	.63510	-.39060	-.13730	-.11770
.599	142.600	4.73770	-3.45020	-1.94950	-1.02500	1.51920	-.02920	.64280	-.46790	-.16220	-.11950
.599	140.580	4.75750	-4.10610	-1.94420	-.55150	1.24590	.02340	.65360	-.48680	-.18040	-.12070
.599	138.540	4.94200	-4.79090	-1.90440	-.44770	.59010	-.04980	.66250	-.60050	-.23300	-.15480
.599	136.500	5.16770	-5.36290	-1.85190	-.40280	.55170	.05540	.66800	-.76470	-.29170	-.9280
.599	134.470	5.34660	-5.99590	-1.78730	-.46090	.60070	.03710	.67480	-.98790	-.37500	-.23770
.599	132.390	5.63900	-6.28750	-1.76500	-.44780	.61950	.05560	.67750	-.121850	-.47840	-.28100
.599	130.360	6.28190	-5.99750	-1.70190	-.05540	-.28870	-.03990	.66130	-.140320	-.55210	-.20950
.599	128.440	7.06440	-4.83110	-1.64980	-.03080	-.36280	-.03960	.63920	-.151510	-.58880	.5190
.599	138.550	4.54320	-4.72710	-1.91530	-.43780	.56590	-.03200	.66140	-.63120	-.23940	51.3
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA. MSFC TWT 604. SA-BF

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MSFC TW1674 (SABF) SR8 WITH ALL PROTRUDANCES

(R1H043) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	YHPP	=	5.7210	IN. XS
LREF	=	8000	IN.	YHPP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZHPP	=	.0000	IN. ZS
SCALE	=	.0055					

BETA -  
NOZZLE -

PARAMETRIC DATA

PHI 90.000  
PHI 90.000

42/ 0	RN/L = 6.30	GRADIENT INTERVAL = -5.00/ 5 00
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[illegible]

RUN NO.	41/ 2	RN/L =	6.68	%GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

MSFC TWT604 (548F) SRR WITH ALL PROTRUSANCES  
(R1H043) ( 10 JUL 75 )

## REFERENCE DATA

SRF	5030 SQ. IN.	XAPP	5.7210 IN. XS
REF	8000 IN.	YAPP	.0030 IN. YS
BREF	8000 IN.	ZAPP	.0030 IN. ZS
SCALE	.0095		

## PARAMETRIC DATA

BETA	•	.000	PHI	•	50.000
NOZZLE	•	.000			

RUN NO.	105/ 0	RN/L = 7.11	GRADIENT INTERVAL = -5.00/ 5.00
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MACH	ALPHA	CNM	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.946	147.470	7.36550	1.27580	-2.85090	-0.06560	.35530	-.05400	.56920	-.25410	-.23480	-.22921
1.946	145.430	8.01460	1.41720	-2.80780	-.08640	.22850	-.05300	.56890	-.25990	-.23040	-.21990
1.946	143.210	8.95930	1.65810	-2.77950	-.07740	.23000	-.05300	.56830	-.26220	-.22740	-.22740
1.946	141.100	9.58940	1.86570	-2.71710	-.04950	.21900	-.05180	.56750	-.28220	-.23060	-.22280
1.946	138.960	10.25310	2.15880	-2.61150	-.03920	.23300	-.04900	.56620	-.28140	-.22180	-.21580
1.946	136.750	11.09500	2.20780	-2.47710	-.01310	.24420	-.05680	.56710	-.28620	-.22110	-.21400
1.946	134.520	11.77960	2.24260	-2.33420	-.00630	.26430	-.05750	.56660	-.29020	-.20410	-.20640
1.946	132.440	12.41900	2.58100	-2.20070	.00130	.28990	-.04810	.56640	..29	-.19570	-.18930
1.946	130.270	13.20710	2.54000	-2.05830	.01660	.29420	-.05100	.56770	..30740	-.17970	-.17450
1.946	126.210	13.71250	2.87210	-1.92990	.02160	.35710	-.05950	.56530	..30840	-.16040	-.14950
1.946	126.150	14.36240	2.85660	-1.78880	.03560	.39800	-.06540	.56710	..32920	-.15900	-.13140
1.946	136.840	10.81810	2.34350	-2.43130	-.03630	.24760	-.05870	.56570	..27410	-.18590	-.21050
REAGENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.000000	.00000	.00000

RUN NO.	27	1	RN/L	=	5.17	GRADIENT INTERVAL	=	-5.00/	5.00
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[illegible]

DATE 10 JUL 79

TABULATED SOURCE DATA. MSFC TWT 674. SA-8F

PAGE : 15

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R14043) 10 JUL 1951

## REFERENCE DATA

SCALE	=	.0055
BREF	=	.8000 IN.
LRF	=	.8000 IN.
SCEF	=	.5030 SQ. IN.
XAPP	=	5.7210 IN. XS
ZAPP	=	.0000 IN. ZS
YAPP	=	.0000 IN. YS

BETA -  
NOZZLE -

90.003

## PAFAMETRIC DATA

RUN NO. 28/ 0 RN/L = 5 69 GRADIENT INTERVAL = -5 00/ 5.00

MACH	ALPHA	CNN1	CLMM	CA	CYM	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	148.660	5.26400	1.49510	-2.68090	-0.76400	.111490	-.07990	56020	-0.05150	-.01180	-.00950
4.450	145.710	5.77650	1.47940	-2.39980	-0.76000	.06190	-.03650	56250	-0.07470	-.00380	-.00360
4.450	146.650	6.47300	1.42920	-2.32490	-0.76200	.07490	-.04710	56540	-0.04280	0.00240	-.00430
4.450	142.620	7.11040	1.47420	-2.25680	-0.62400	.05700	-.03730	56650	-.03910	-.00910	0.00280
4.450	140.560	7.74630	1.51800	-2.21500	-0.62500	.01890	-.01540	56740	-.03650	0.01620	0.02080
4.450	138.490	8.41190	1.53540	-2.17550	-0.05060	.08910	-.00510	56950	-.03410	0.02470	0.03040
4.450	136.440	9.07640	1.76260	-2.13360	-.05400	.09570	-.01370	56750	-0.30000	0.04090	0.04090
4.450	134.420	9.65510	2.18720	-2.05840	-.04480	.06900	-.02200	56490	-0.24600	0.04760	0.05480
4.450	132.340	10.23810	2.54400	-2.15000	.02200	.08190	-.06210	56310	-.02320	0.05630	0.06620
4.450	130.290	10.89600	2.80470	-1.95530	-.04080	.11790	-.03320	56240	-.02940	0.05410	0.07490
4.450	128.310	11.47470	3.29870	-1.82300	-.04750	.09900	-.06170	55990	-0.03430	0.07510	0.08620
4.450	138.460	8.49660	1.54960	-2.16690	-.06470	.05230	-.04700	56850	-0.32500	0.02630	0.03320
GRADIENT		00000	.00000	.00000	.00000	.00000	-.00030	00000	00000	.00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

(IR14044) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XC  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = 90.000  
NOZZLE = .000

## PARAMETRIC DATA

MACH	ALPHA	CLM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.399	169.070	.59360	-1.42620	-1.56400	.01050	-.22890	-.03620	.77940	.06660	.10530	.10040
.399	167.160	.72730	-1.60310	-1.63900	-.00540	-.17140	-.07350	.76320	.06370	.09860	.09860
.399	165.140	.93920	-1.86230	-1.71370	.03180	-.14530	-.06660	.74510	.04100	.09160	.08560
.399	163.140	1.18360	-1.99890	-1.75910	.01870	-.25520	-.03310	.72110	.02900	.08350	.07500
.399	161.110	1.45460	-2.02250	-1.82370	.01780	-.19450	-.06110	.69680	-.01570	.05890	.05770
.399	159.080	1.66180	-1.88910	-1.88100	.10300	-.21930	-.09470	.67610	-.02140	.04810	.04570
.399	157.060	1.99210	-1.80910	-1.97380	.14110	-.36490	-.08900	.65550	-.05440	.02420	.02420
.399	155.060	2.26650	-1.66170	-2.04480	.12880	-.05370	-.10530	.64320	-.08340	.00850	.00970
.399	153.010	2.60250	-1.43920	-2.08630	.06090	1.24790	-.06550	.62850	-.15360	-.02400	-.01310
.399	150.980	2.91220	-1.61660	-2.07020	.23280	1.35880	-.05280	.62870	-.18770	-.05160	-.06370
.399	149.060	3.29190	-2.02100	-2.05160	.11386	1.48400	-.03240	.63350	-.27910	-.07360	-.07480
.399	159.080	1.65190	-1.92980	-1.88640	.03430	-.21170	-.04950	.67870	-.01750	.04790	.34190
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 85/ 0 RN/L = 5.25 GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 86/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CLM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.598	169.040	.54260	-1.33230	-1.65240	.00320	-.31450	-.00540	.75250	.06290	.07890	.08070
.598	167.110	.84460	-1.57250	-1.72250	-.00770	-.25690	-.01770	.73530	.05130	.06460	.06310
.598	165.090	1.07290	-1.80970	-1.79040	-.00410	-.27370	-.00740	.72100	.03690	.05560	.05740
.598	163.080	1.29620	-1.95540	-1.83910	-.05250	-.30130	-.00970	.70640	.02790	.04920	.04920
.598	161.040	1.60320	-2.09350	-1.91220	-.07600	-.32510	-.00590	.68990	.01910	.04400	.04490
.598	159.000	1.83190	-2.03190	-1.99210	-.12270	-.54000	-.00870	.67390	-.00750	.02720	.03340
.598	156.970	2.16590	-2.07030	-2.06330	-.11860	-.68340	-.02930	.66130	-.03660	.00350	.02020
.598	154.940	2.49270	-1.99800	-2.10430	-.15650	-.23970	-.01020	.64680	-.10020	.03060	.00320
.598	152.890	2.81210	-1.83300	-2.16190	-.05600	.26370	-.02250	.63650	-.14160	.06740	.01550
.598	150.870	3.05600	-1.91070	-2.10510	-.04260	1.28520	-.00870	.63370	-.17850	.09690	.04040
.598	148.930	3.66240	-2.04390	-2.07650	-.26690	3.08000	-.00980	.62890	-.21280	.13200	.08720
.598	159.010	1.80730	-1.97700	-1.97630	-.12160	-.61720	-.00180	.67260	.00050	.02910	.03180
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, NSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H044) (10 JUL -51)

## REFERENCE DATA

SREF	5030	SQ. IN.	XMRP	5	7210	IN. XS
LREF	8000	IN.	YMRP	.	0000	IN. YS
BREF	8000	IN	ZMRP	.	0000	IN. ZS
SCALE	.	0055				

BETA	-	000	PHI	-	90 000
NOZZLE	-	000			

### PARAMETRIC DATA

RUN NO. 87/ 0 RN/L = 6.27 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

RUN NO.	BB/ 0	RN/L	= 6.69	GRADIENT INTERVAL	= .5 00/ 5 00
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MACH	ALPHA	CMA	CLMM	CA	CYM	CYMM	CBL	ACPL/L	CBP1	CBP2	CBP3
1 197	168 950	98870	-1.43610	-2.261090	-0.9910	-4.0150	00780	70190	-1.10450	-0.09990	-1.12270
1 197	165 890	1 20960	-1.71950	-2 68670	-0.6600	-36040	00550	69930	-1.1550	-1.0920	-1.3960
1 197	164 810	1 49950	-2 00060	-2 76580	-0.6640	-19360	00360	69230	-1.2570	-1.1930	-1.5190
1.197	162 710	1 93310	-2.40800	-2 79780	-0.4870	72140	02360	68500	-1.4550	-1.3500	-1.7550
1.197	160 550	2.55600	-2 70020	-2.82820	-1.9950	1 71090	03610	66960	-1.8160	-1.6510	-2.1290
1 197	158 390	3.33250	-2 70700	-2 85440	-3.2670	2 98370	02410	64960	-2.2010	-2.0230	-2.4460
1 197	156 220	4.19400	-2.49890	-2 87400	-0.7620	3 54720	01410	63200	-2.5710	-2.3420	-2.7790
1.197	154 060	5 01590	-2.33930	-2 88260	09450	2 97900	00540	62430	-2.9720	-2.6330	-3.1500
1 197	151 900	5 59810	-2 74260	-2 85660	-0.8960	78000	00490	62330	-3.1140	-2.8620	-3.4490
1 197	149 720	6 47770	-2 54320	-2 83040	-1.6790	39480	-00760	61540	-3.2710	-3.1140	-3.6640
1 197	147 660	7 46510	-2 31750	-2 81010	-2.0000	07190	-00940	60870	-3.4220	-3.4220	-4.0110
1 197	158 380	3 35170	-2 73770	-2 86430	-2.8340	2 99250	03570	65000	-2.2700	-2.1130	-2.5020
GRADIENT		00000	00000	00000	00000	00000	00300	00000	00000	00000	00000

REFERENCE DATA  
 SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
 LREF = 0000 IN YMRP = 0000 IN. YS  
 BREF = 8000 IN. ZMRP = 0000 IN. ZS  
 SCALE = 0055

PARAMETRIC DATA  
 BETA = 000 PHI = 90 000  
 NOZZLE = 000

RUN NO. 99/ 0 RN/L = 7.06 GRADIENT INTERVAL = -5.00/ 5 00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1
1.955	168 860	86340	-1.23190	-2.59060	-0.0960	-0.14530	-0.01670	.69980	-0.09620
1.955	166 860	1 26730	-1.35800	-2 61250	-29130	-56220	-0.05000	.67080	-0.11490
1.955	164 690	1.94490	-1.26000	-2 68120	-64110	-1.00810	-0.0190	.63620	-0.14190
1.955	162 580	2 53790	-1 37620	-2 72260	-52320	-04650	-00650	.62760	-0.15670
1.955	160 400	3 25710	-1 15240	-2 78650	-19430	1.44990	-00960	.61270	-0.18210
1.955	158 250	4.09580	-0.52800	-2.84480	.07140	2.11000	-00790	.59390	-0.19750
1.955	156 110	4 82740	-0.06280	-2.85710	.12880	1.73340	-01710	.58430	-0.20450
1.955	153 960	5 53240	1.7630	-2.87770	-0.01630	.72470	-02170	.58080	-0.22110
1.955	151.770	6 27570	.54300	-2 89970	-10380	.15220	-0.3550	.57630	-0.24010
1.955	149 690	6 81110	.81800	-2 86220	-09120	.34360	-02770	.57360	-0.25860
1.955	147 700	7 37810	1 05740	-2 82890	-02100	.47510	-04050	.57170	-0.28850
1.955	158 300	4 04320	-20130	-2 78560	11910	2.08050	-01260	.58740	-0.19680
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 17/ 0 RN/L = 5.22 GRADIENT INTERVAL = -5 00/ 5 00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1
2.740	168 990	89310	-0.68470	-2.57570	-0.15600	-0.48070	-0.3150	.64590	-0.08990
2.740	167 030	1 35200	-0.50570	-2 62130	-28350	-0.71220	-0.3700	.61390	-0.10170
2.740	164 970	1 80530	-0.37670	-2 64590	-25260	-0.63330	-0.24440	.60040	-0.10970
2.740	162 930	2 20830	-0.25250	-2 67780	-19830	-0.43320	-0.2450	.59270	-0.11050
2.740	160 860	2 76270	-0.08250	-2 70890	-16860	-0.36700	-0.1580	.58590	-0.11180
2.740	158 760	3 44970	0.39400	-2 74880	-04030	.57080	-0.2320	.57410	-0.12570
2.740	156 690	4 03650	.65710	-2 76550	-09460	.14240	-0.7700	.57010	-0.13140
2.740	154 620	4 57830	.79940	-2 79790	-07920	.16870	-15040	.56910	-0.14440
2.740	152 520	5 08900	.93290	-2 80050	-04990	.23200	-03520	.56860	-0.14440
2.740	150 440	5 74000	1 01520	-2 79410	-05830	.21430	-03320	.56730	-0.14770
2.740	148 470	6 36570	1 06650	-2.77380	-05100	.23280	-04740	.56970	-0.15120
2.740	154 760	3 46560	37400	-2 73170	-05700	.33570	-01880	.57450	-0.12450
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000

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(R11-244) ( 10 Ju. 75 )

PARAMETER DATA

BETA - 000 PHD - 90 000  
NOZZE - 000

06090	06780	06960	07290	07345	08150	09700	09630	09300	09400	09600
06090	06780	06960	07290	07345	08150	09700	09630	09300	09400	09600

84-3  
03150  
03310  
03470  
03610  
03730  
03910  
03960  
03990  
03450  
03150  
03190  
03130  
00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC INT 604, SA-BF

PAGE 121

MSFC INT604 (SABF) SRB WITH ALL PROTECTORANCES

(IRIHOVS) (10 JUL 75)

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5 7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

BETA = 000 PHI = 90.000  
NOZZLE = 000

PARAMETRIC DATA

RUN NO. 53/ 0 RN/L = 5.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
396	189 520	-54000	1.00210	-1.61030	-00460	-1.15820	-02960	73470	.05660	.08810	.07170
396	187 600	-1.38110	.62820	-1.50780	.13170	-1.37350	-.04010	71780	.07920	.10050	.07420
396	185 580	-2.3500	.41960	-1.39330	.07730	-1.35310	-.03570	.72900	.08330	.10890	.07960
396	183 590	-1.16590	.17530	-1.28690	.06230	-1.33670	-.05770	.66960	.07960	.10530	.07960
396	181 580	-1.13480	-0.7890	-1.23370	.01450	-1.40830	-02390	.53560	.08160	.10830	.08890
396	179 550	.00480	-0.30700	-1.25180	.01500	-1.30580	-05550	5.77140	.07940	.09770	.09520
396	177 530	11660	-0.50170	-1.22400	.09110	-1.46080	-05640	.93420	.08520	.10100	.09980
396	175 520	.17940	-0.78650	-1.27490	.02460	-1.36900	-03680	.94090	.08400	.09370	.10460
396	173 490	28480	-1.02370	-1.38370	.02550	-1.35040	-04970	.87660	.07550	.09370	.09860
396	171 480	.39820	-1.22010	-1.48000	.09730	-1.29760	-07070	.83330	.07360	.08460	.08820
396	169 580	53900	-1.45410	-1.55920	.09990	-1.27700	-.03810	.87350	.06520	.08360	.07500
396	179 560	-09510	-1.32290	-1.24610	.06730	-1.29350	-04840	.30640	.07570	.09030	.09150
GRADIENT	00200	00200	00200	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 54/ 0 RN/L = 5.00 GRADIENT INTERVAL = 5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
597	189 530	-47970	97260	-1.70380	.03180	-05950	-03090	74880	.05660	.06280	.05390
597	187 610	-35320	74890	-1.58660	.05040	-1.8160	-01140	75630	.06600	.07310	.06330
597	185 590	-19880	52020	-1.46580	.05560	-1.30350	04240	79690	.08710	.09510	.08170
597	183 600	-14570	24560	-1.35990	.06110	-1.38310	.00080	72080	.09420	.09960	.08520
597	181 540	00840	-22950	-1.28880	.06820	-1.43080	.01510	2.60250	.09820	.09260	.08480
597	179 540	.05550	-25330	-1.26430	.01790	-1.45750	-00400	.95540	.09160	.09420	.09690
597	177 530	.16220	-39750	-1.25680	.06940	-1.40140	-00360	.78330	.09160	.09340	.10140
597	175 510	21470	-1.4490	-1.34530	.07450	-1.40340	-01110	.87020	.09450	.09090	.10250
597	173 440	39700	-1.00410	-1.45710	.10260	-1.36900	.00090	.78970	.07670	.08430	.09570
597	171 450	49430	-1.21120	-1.56370	.02810	-1.35590	.00480	.78330	.06440	.07710	.07620
597	169 570	64430	-1.37240	-1.65240	.03080	-1.37310	.00650	.75590	.05550	.05910	.06000
597	179 510	04590	-08750	-1.28080	.01950	-1.50640	.00860	1.00270	.09430	.09400	.09680
GRADIENT	10000	10000	00000	00000	00000	00000	00000	00000	.09400	.06000	.00000

23

(R14045) (10 JUL 55)

WSSC TW1604 (SABF) SRB WITH ALL PROTECTORANCE'S

## PARAMETRIC DATA

BETA = 000 P-HI = 90.00  
NOZZLE = 000

55/ 0	6 23	GRADIENT INTERVAL =	-5 00'	5 00
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005 11

MACH	ALPHA	CNN	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP-1	(BP2)	(BP3)
901	189 560	59940	00330	2 00610	- 01360	- 114740	50290	-	- 05490	- 02180	- 02180
901	187 510	- 40320	- 27950	1 88720	- 01020	- 11130	52680	-	- 03680	- 00820	- 00820
901	195 560	25420	- 43640	- 1 78310	- 01580	- 15100	44330	-	- 00460	- 00720	- 00720
901	183 510	- 7880	- 42040	- 1 62620	- 01010	- 11560	39160	-	- 01870	- 01550	- 01550
901	- 36190	- 06190	- 07750	- 1 45050	- 06450	- 11980	55600	-	- 03430	- 04210	- 04210
901	179 540	09720	- 02760	- 1 45230	- 06550	- 36370	60630	-	- 04630	- 04230	- 04230
901	177 530	15940	22850	- 1 51750	- 03990	- 137450	02050	-	- 00670	- 02670	- 02670
901	175 510	30840	17410	- 1 63720	- 07230	- 44350	53730	-	- 02650	- 03930	- 03930
901	173 450	45720	- 01730	- 1 70220	- 06650	- 38320	00040	-	- 02750	- 00110	- 00110
901	171 410	62190	- 21200	- 1 86520	- 00940	- 44030	61120	-	- 04790	- 01530	- 01530
901	169 430	84810	- 27990	- 1 96500	- 07220	- 39120	61470	-	- 56320	- 00790	- 00790
901	179 540	19720	- 02990	- 1 42540	- 05480	- 43650	60950	-	- 4220	- 04340	- 04340
901	180 500	17000	17000	00000	00000	-	00000	-	-	- 0000	- 0000

[illegible]

56/ 0	RN/L =	6 72	GRADIENT INTERVAL =	- 5 00/	5 00
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1 / 5 00

MACH	ALPHA	CN1	CLIM	CA	CYM	CYNN	CBL	XCP/L	CSP1	CBP2	CBP3	LBP3
1 203	189 720	- 70600	1 42240	-2 71050	- 02180	- 18500	0055C	74 770	- 15350	- 16020	- 14000	
1 203	187 730	- 48200	1 08020	-2 56190	- 02180	- 19410	-02290	76620	- 13790	- 15210	- 12610	
1 203	185 650	- 30280	81360	-2 55290	- 01770	- 18220	00650	80260	- 11960	- 12180	- 11160	
1 203	183 630	- 19340	49400	-2 49400	- 01470	- 14620	00390	79170	- 11540	- 10660	- 10740	
1 203	181 560	- 05980	16360	-2 39030	- 01120	- 12490	00320	80630	- 11450	- 10490	- 10430	
1 203	179 520	- 14520	00490	-2 36360	- 01020	- 08900	01630	58610	- 11170	- 10260	- 13430	
1 203	177 480	- 26060	-25310	-2 37190	- 01000	- 21550	03670	56390	- 11850	- 10530	- 10470	
1 203	175 430	40100	- 61710	-2 43640	- 00050	- 32190	02000	70990	- 10110	- 11040	- 14500	
1 203	173 350	50340	- 83880	-2 52680	- 01690	- 35670	01230	70070	- 10110	- 11590	- 14790	
1 203	171 280	78390	- 123500	-2 55550	- 07630	- 43850	00910	71190	- 12780	- 12310	- 13280	
1 203	169 340	99990	- 117750	-2 62510	- 08290	- 53000	01480	70330	- 13610	- 12440	- 14490	
1 203	179 510	10900	- 07520	-2 37080	- 01460	- 11290	00330	61970	- 12660	- 09730	- 09060	
1 203	174 010	00000	00000	- 00000	- 00000	- 00000	00000	00000	- 00000	- 00000	- 00000	

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00000

REFERENCE DATA  
 SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
 LREF = 8000 IN. YMRP = .0000 IN. YS  
 BREF = 8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

PARAMETRIC DATA  
 BETA = .000 PHI = 90.000  
 NOZZLE = .000

RUN NO. 108/ 0 RN/L = 7.02 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.951	189.720	-72450	1.12820	-2.63330	11490	49300	.01090	71040	-10910	-11210	-10610
1.951	187.740	-48520	94140	-2.56860	03240	.21190	01880	74160	-03510	-09280	-08980
1.951	185.670	-32910	60120	-2.47480	-05280	-00550	01340	78190	-08740	-07830	-07310
1.951	183.640	-19360	48970	-2.50370	-01620	.00000	01830	78970	-07520	-06810	-06440
1.951	181.610	-08650	14050	-2.47250	-02140	-04850	02100	71590	-06660	-05990	-05920
1.951	179.540	04280	-10840	-2.43300	-00960	03100	02450	78990	-05310	-04230	-06050
1.951	177.490	17400	-35060	-2.44310	-00580	00240	-00710	74770	-07090	-06470	-06260
1.951	175.430	29020	-69900	-2.45090	-02830	-00320	.01110	77390	-01970	-06470	-06730
1.951	173.330	46050	-94760	-2.53160	-04720	-18050	01070	75130	-08760	-07630	-08310
1.951	171.290	65290	-113340	-2.60140	-04440	-18850	00820	72500	-09780	-09070	-09670
1.951	169.310	91630	-133370	-2.60880	-07880	-21110	00610	70210	-10480	-10460	-11140
1.951	167.500	08650	-2.350	-2.36740	-02390	-01830	02060	79560	-05620	-05510	-05470
1.951	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 3/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	189.590	-70870	66540	-2.62780	04690	14170	02330	65000	-09040	-09190	-08470
2.740	187.650	-4470	64140	-2.56530	-03660	-10500	01410	69840	-07790	-07790	-07450
2.740	185.620	-31300	34840	-2.50420	-01570	10710	-00960	67420	-07010	-06670	-06420
2.740	183.620	-19140	34930	-2.45690	-01590	00660	-00940	73720	-06240	-05910	-05450
2.740	181.640	-10530	11240	-2.41490	-02200	-01570	01440	71690	-05730	-05180	-04410
2.740	179.550	-00050	08580	-2.40420	-0230	-01980	-01480	00000	-05070	-05070	-04260
2.740	177.530	07140	-26340	-2.40190	00090	-01460	-00610	88130	-05170	-05350	-04510
2.740	175.510	19310	-45580	-2.43720	-00410	-05990	-00670	77590	-06100	-05740	-04180
2.740	173.450	36560	-69890	-2.49180	-02590	-16160	00430	71700	-06880	-06680	-05250
2.740	171.420	53750	-172240	-2.53630	-05470	-33960	00020	69300	-08250	-07990	-06590
2.740	169.450	84480	-57700	-2.58870	-10530	-148080	-02400	13570	-09390	-09390	-07860
2.740	167.420	-30030	-02340	-2.44230	-02670	-07250	-01680	00010	-05250	-05080	-02930
2.740	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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TABULATED SOURCE DATA, MSFC TWY 604, SA-8F

MSJC TUT504 (SAB) 588 WITH ALL PROTOGRAPHS (R14045) 10 11 75

## REFERENCE DATA

SRF	5030	50 IN	X400	5 7210	IN	XS
LEF	6000	IN.	Y400	0000	IN	YS
BOF	8000	IN.	Z400	0000	IN	ZS
SCALE	0055					

### PARAMETRIC DATA

BETA	•	000	PHI	-	90.000
NOZZLE	•	377200			

RUN NO. 4/ 0 RW/L = 5.43 GRADIENT INTERVAL = -5.00/ 5 00

MACH	A <sub>1</sub> -A <sub>4</sub>	CN <sub>1</sub>	CL <sub>1</sub> M <sub>1</sub>	CA	CY <sub>1</sub>	CY <sub>2</sub>	CY <sub>3</sub>	XCP/L	CB <sub>1</sub> -1	CB <sub>1</sub> -2	CB <sub>1</sub> -3
4 450	189 510	57790	18010	-2 41330	-01140	.04050		60880	-03770	-05830	00220
4 450	187 600	37510	21690	-2 38990	-01190	.03650		63050	-03590	-03630	-
4 450	185 600	23190	24150	-2 34430	-02610	.00220		58330	-03310	-03390	00450
4 450	17220	17220	21540	-2 31210	-00960	-06750		68530	-02980	-03440	00430
4 450	191 570	00240	10920	-2 27150	-02460	.08650		3 12540	-02800	-02850	00850
4 450	179 550	03060	06680	-2 27500	-00620	-00850		76150	-0 560	-02430	00850
4 450	177 540	08770	19890	-2 27330	-01890	.07240		76830	-02740	-02820	00250
4 450	175 540	11810	26380	-2 29380	-00350	.06980		67560	-02320	-02370	00730
4 450	171 500	29160	33850	-2 33460	-00260	.07660		67800	-03130	-03210	00010
4 450	171 480	46660	26930	-2 36580	-00970	.01730		63050	-03490	-03550	00310
4 450	169 590	63750	20570	-2 40110	-01830	.09410		60470	-02970	-02970	00150
4 450	179 550	02820	10430	-2 400	-03420	-09190		80530	-02740	-02880	00150
GRAND	00000	00000	00000	00000	00000	00000		10000	00000	00000	00000

TABULATED SOURCE DATA, MSFC INT 604, SA-8F  
MSFC INT604 (SABF) SRB WITH ALL PROTUBERANCES

(PIH046) ( 10 JUL 75 )

PARAMETRIC DATA

BETA = 000 PHI = 135 000  
NOZZLE = 000

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

RUN NO 201/ 0 RW/L = 7 09 GRA' EN INTERVAL = -5.00/ 5 00

MACH	ALPHA	CLIM	C.LIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	9.610	-1.26320	-2.17110	83630	04760	-0.01520	02340	.44320	-07190	-08670	-08600
3.480	11.150	-1.40460	-1.82380	81510	02950	02470	02010	.41610	-06480	-08480	-08550
3.480	13.540	-1.42180	-1.39940	81410	-03750	07000	01820	.38020	-06110	-08210	-08420
3.480	15.540	-1.31540	-0.85730	81290	-04060	10400	02400	.37490	-05880	-08090	-08250
3.480	17.490	-1.24920	-0.35720	81420	-05150	10400	-02480	.34770	-05650	-08120	-08110
3.480	19.500	-1.14050	0.09310	80460	-07560	15250	-01800	.54730	-05560	-08050	-07880
3.480	21.600	3.20600	4.78900	84320	-07820	17730	01610	.48450	-05640	-08230	-07970
3.480	23.640	5.22330	5.76200	82780	04280	13330	-04650	.41091	-05940	-08330	-08130
3.480	25.620	8.14500	1.45280	86300	-11510	19370	04120	.43800	-06500	-08500	-08300
3.480	27.730	1.13040	1.84820	86790	-13270	21230	-05390	.45330	-07460	-08630	-08550
3.480	29.730	1.61700	2.25550	87340	-18450	21110	-05020	.46870	-07530	-08850	-08790
3.480	31.800	1.18000	0.97700	80270	-06810	17770	-01190	.52270	-05580	-08080	-08050
3.480	33.800	1.04000	2.27569	00.000	00643	02645	-00768	.01138	-00025	-00035	-00019

DATE 10 JUL 73

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TABLED SOURCE DATA. MSFC TWT 604, SA-BF

(R14047) ( 10 JUL 75 )

MSFC TH'S04 (SABF) SRB WITH ALL PROTUBERANCES

### PARAMETRIC DATA

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

## REFERENCE DATA

SREF	■	.5030	IN.	YS	■	5.7210	IN.	XS
LREF	■	.8000	IN.	YS	■	.0000	IN.	YS
BREF	■	.8000	IN.	ZS	■	.0000	IN.	ZS
SCALE	■	.0095						

RM NO	197/ 0	RN/L	= 6.95	GRADIENT INTERVAL	= -5.00/ 5.00
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[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

REFERENCE DATA

PARAMETRIC DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000  
NOZZLE = .000  
PHI = 135.000

RUN NO. 408/ 0 RN/L = 5.14 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBP3
.401	70.280	10.06210	10.49890	.07050	2.42900	3.49260	.23170	.49820	.00000
.401	72.180	10.51610	10.54360	.05620	2.21100	4.20870	.26100	.50160	.00000
.401	74.170	10.60580	10.44120	.04090	1.54580	.38140	.22480	.50310	.00000
.401	76.180	10.60750	10.70800	.09620	.70790	1.11730	.23510	.50250	.00000
.401	78.170	10.97950	10.61760	.12860	.47840	-.09610	.22690	.50450	.00000
.401	80.170	11.10080	10.37470	.18880	.32990	-1.53800	.24190	.50710	.00000
.401	82.170	11.04510	8.89810	.38370	-.02180	-3.57100	.24850	.51760	.00000
.401	84.130	10.94750	7.33610	.51270	.00180	-4.73510	.21240	.52870	.00000
.401	86.100	10.89140	5.69980	.70740	.06950	-4.81810	.25580	.54070	.00000
.401	88.080	10.95160	4.20310	.85750	.26900	-3.67030	.20330	.55210	.00000
.401	89.990	11.05080	3.58130	.83100	.34130	-3.20300	.22860	.55690	.00000
.401	90.170	11.07330	10.35210	.16700	.33070	-1.51680	.23270	.50710	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 407/ 0 RN/L = 5.14 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBP3
.597	70.370	12.26840	13.83720	.06520	-.32820	-.06200	.25760	.49090	.00000
.597	72.250	12.52360	13.77750	.09970	-.57720	-.68260	.25840	.49360	.00000
.597	74.260	12.63070	13.44400	.13130	-.89650	-1.68720	.25940	.49560	.00000
.597	76.240	12.66580	12.70440	.20720	-1.07120	-2.51440	.25580	.50150	.00000
.597	78.210	12.58130	10.86350	.45270	-1.03550	-3.06850	.23060	.51290	.00000
.597	80.180	12.69480	9.48890	.61240	-1.23690	-2.66990	.23990	.52240	.00000
.597	82.190	12.72340	8.70080	.66270	-1.13540	-2.58450	.23480	.52760	.00000
.597	84.150	12.82550	7.84090	.71170	-1.07620	-2.60170	.24520	.53350	.00000
.597	86.130	12.93780	6.65160	.78690	-.97970	-2.86870	.23620	.54140	.00000
.597	88.130	13.00440	5.61180	.83360	-.80200	-2.85090	.25640	.54820	.00000
.597	89.990	13.04410	4.77740	.86170	-.63590	-2.59390	.25570	.55350	.00000
.597	90.180	12.56370	9.38400	.60120	-1.22680	-2.55720	.23010	.52240	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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NSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H048) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XRRP	=	5.7210	IN. XS
LREF	=	.8000	IN.	YRRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZRRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

RUN NO.	406/ 0	RN/L = 6.51	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

RUN NO. 405/ 0 RN/L = 6.94 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES (RIH049) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	SQ. IN.	XRRP =	5.7210	IN. XS
LREF =	.8000	IN.	YRRP =	.0000	IN. YS
BREF =	.8000	IN.	ZRRP =	.0000	IN. ZS
SCALE =	.0055				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

RUN NO.	404/ 0	RN/L =	7.31	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 403/ 0 RN/L = 5.35 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA. MSFC TWT 604. SA-8F

PAGE 130

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H048) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5030	IN.	XS	=	5.7210	IN.	XS
LREF	=	9000	IN.	YS	=	.0000	IN.	YS
ZREF	=	8000	IN.	ZS	=	.0000	IN.	ZS
SCALE	=	.0055						

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

### PARAMETRIC DATA

TEST NO	WGT/0	BN/1	7.31	GRADIENT INTERVAL	-5.00/	5.00
1	100	100	100	100	100	100
2	100	100	100	100	100	100
3	100	100	100	100	100	100
4	100	100	100	100	100	100
5	100	100	100	100	100	100
6	100	100	100	100	100	100
7	100	100	100	100	100	100
8	100	100	100	100	100	100
9	100	100	100	100	100	100
10	100	100	100	100	100	100
11	100	100	100	100	100	100
12	100	100	100	100	100	100
13	100	100	100	100	100	100
14	100	100	100	100	100	100
15	100	100	100	100	100	100
16	100	100	100	100	100	100
17	100	100	100	100	100	100
18	100	100	100	100	100	100
19	100	100	100	100	100	100
20	100	100	100	100	100	100
21	100	100	100	100	100	100
22	100	100	100	100	100	100
23	100	100	100	100	100	100
24	100	100	100	100	100	100
25	100	100	100	100	100	100
26	100	100	100	100	100	100
27	100	100	100	100	100	100
28	100	100	100	100	100	100
29	100	100	100	100	100	100
30	100	100	100	100	100	100
31	100	100	100	100	100	100
32	100	100	100	100	100	100
33	100	100	100	100	100	100
34	100	100	100	100	100	100
35	100	100	100	100	100	100
36	100	100	100	100	100	100
37	100	100	100	100	100	100
38	100	100	100	100	100	100
39	100	100	100	100	100	100
40	100	100	100	100	100	100
41	100	100	100	100	100	100
42	100	100	100	100	100	100
43	100	100	100	100	100	100
44	100	100	100	100	100	100
45	100	100	100	100	100	100
46	100	100	100	100	100	100
47	100	100	100	100	100	100
48	100	100	100	100	100	100
49	100	100	100	100	100	100
50	100	100	100	100	100	100
51	100	100	100	100	100	100
52	100	100	100	100	100	100
53	100	100	100	100	100	100
54	100	100	100	100	100	100
55	100	100	100	100	100	100
56	100	100	100	100	100	100
57	100	100	100	100	100	100
58	100	100	100	100	100	100
59						

[illegible]

(RIH049) ( 10 JUL 75 )

PARAMETRIC DATA

BETA = .000 PHI = 135.000  
NOZZLE = .000

REFERENCE DATA

SREF = .5030 SQ. IN. X\*PP = 5.7210 IN. XS  
LREF = .8000 IN. Y\*PP = .0000 IN. YS  
BREF = .8000 IN. Z\*PP = .0000 IN. ZS  
SCALE = .0055

RUN NO. 352/ 0 RN/L = 5.35 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYH	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.398	129.580	7.90940	-6.25610	-1.72580	2.68880	1.42930	.14730	.66970	.00000	.00000	.00000
.398	127.670	6.38300	-6.38340	-1.62110	2.55510	1.25840	.12190	.66500	.00000	.00000	.00000
.398	125.640	6.75100	-6.49750	-1.50330	2.35410	1.07320	.11960	.66190	.00000	.00000	.00000
.398	123.640	7.11640	-6.28770	-1.37680	2.23590	1.49220	.15550	.65540	.00000	.00000	.00000
.398	121.640	7.47930	-6.05830	-1.24180	1.91510	1.76160	.18470	.64950	.00000	.00000	.00000
.398	119.640	7.84670	-5.64790	-1.14360	1.87760	2.23410	.17980	.64210	.00000	.00000	.00000
.398	117.620	7.92390	-5.27940	-1.01050	1.61600	2.46740	.17820	.63770	.00000	.00000	.00000
.398	115.640	8.19330	-5.19840	-.90320	1.34970	2.31630	.21210	.63510	.00000	.00000	.00000
.398	113.640	8.54350	-5.12120	-.76680	.95320	3.10090	.22070	.63230	.00000	.00000	.00000
.398	111.620	9.15750	-4.72630	-.67330	-.11910	3.99590	.21090	.62550	.00000	.00000	.00000
.398	109.740	9.58320	-3.82470	-.52570	-.65750	4.23480	.17160	.61590	.00000	.00000	.00000
.398	119.640	7.81610	-5.83320	-1.15400	1.70480	1.92960	.22790	.64430	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 353/ 0 RN/L = 5.11 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYH	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.602	129.480	7.17060	-5.85850	-1.77170	2.15280	2.63800	.19290	.65000	.00000	.00000	.00000
.602	127.600	7.73590	-5.31780	-1.66070	2.06330	2.28100	.19510	.63950	.00000	.00000	.00000
.602	125.570	8.24110	-5.05740	-1.52420	1.94520	1.88830	.22240	.63340	.00000	.00000	.00000
.602	123.570	8.76860	-4.48270	-1.38770	1.88480	1.28180	.22580	.62520	.00000	.00000	.00000
.602	121.590	9.28480	-4.31140	-1.27520	1.38010	1.18430	.24780	.62130	.00000	.00000	.00000
.602	119.580	9.80500	-4.34380	-1.14320	.27160	1.98370	.24780	.61950	.00000	.00000	.00000
.602	117.550	10.15070	-4.50460	-.97470	-.54210	2.82570	.25930	.61960	.00000	.00000	.00000
.602	115.540	10.53870	-4.55160	-.85340	-1.02790	2.10950	.25720	.61860	.00000	.00000	.00000
.602	113.550	10.72810	-4.15820	-.68490	-1.36240	1.19420	.27790	.61500	.00000	.00000	.00000
.602	111.550	10.98450	-3.75190	-.53100	-1.84940	-.13360	.27380	.61120	.00000	.00000	.00000
.602	109.650	11.23480	-3.54240	-.35200	-2.11880	-.103190	.29900	.60910	.00000	.00000	.00000
.602	119.560	9.77730	-4.33400	-1.13600	.24850	1.84890	.24780	.61960	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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WSEC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H049) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	SQ. IN.	X499 =	5.7210	IN. XS
LREF =	.8000	IN.	Y499 =	.0000	IN. YS
BREF =	.8000	IN.	Z499 =	.0000	IN. ZS
SCALE =	.0055				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

RUN NO. 354/ 0 RN/L = 6.44 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	355/ 0	RN/L =	6.87	GRADIENT INTERVAL =	-5.00/ 5 00
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[illegible]

REFERENCE DATA  
SREF = 5030 SQ. IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = 0000 IN. YS  
BREF = 8000 IN ZMRP = 0000 IN. ZS  
SCALE = 0055  
PARAMETRIC DATA  
BETA = 0.00 PHI = 135.000  
NOZZLE = 000

RUN NO. 356/ 0 RN/L = 7.28 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP3
1.954	129 340	12 56030	3 01380	-1.97140	-61290	-1.22230	08040	56380	.00000
1.954	127 430	13 24800	3 36020	-1.86640	-62720	-1.21840	.08890	56270	.00000
1.954	125 420	13 95000	3 72130	-1.76470	-65820	-1.23980	.08990	55160	.00000
1.954	123 400	14 65840	4 05110	-1.64440	-69030	-1.26120	.09040	56080	.00000
1.954	121 400	15 25530	4 76560	-1.52310	-70860	-1.29060	.09430	55790	.00000
1.954	119 370	15 86440	5 06160	-1.36270	-73250	-1.30200	.09090	55730	.00000
1.954	117 370	16 33350	5 53350	-1.19780	-76060	-1.26270	.09870	.55570	.00000
1.954	115 360	16 92500	5 80340	-1.04380	-79150	-1.25400	.10700	.55540	.00000
1.954	113 380	17 13420	6 29440	-87130	-79320	-1.22240	.11900	.55340	.00000
1.954	111 350	17 54300	6 58720	-71150	-80610	-1.22290	.12480	.55270	.00000
1.954	109 420	17 91660	7 02020	-55720	-81380	-1.21320	.12210	.55140	.00000
1.954	119 430	15 52920	5 39350	-1.34270	-70030	-1.25700	.09530	.55500	.00000
GRADIENT		00000	00000	00000	.00000	.00000	.00000	.00000	.00000

RUN NO 357/ 0 RN/L = 5.33 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP3
2.740	129 520	12 12220	3.37080	-2.06290	-53410	-98130	.05910	56070	.00300
2.740	127 610	12 77880	3.77620	-1.92890	-57480	-98210	.05390	55930	.00300
2.740	125 610	13 50780	4.25820	-1.78710	-64260	-97650	.07770	.55770	.00300
2.740	123 580	14 11620	4 67690	-1.64130	-63170	-95460	.07260	.55630	.00300
2.740	121 600	14 68760	5 06480	-1.48190	-64570	-96950	.07880	.55520	.00300
2.740	119 570	15 31080	5 48450	-1.31460	-66050	-97400	.06930	.55410	.00300
2.740	117 570	15 87990	5 89160	-1.14300	-69170	-1.02250	.13900	.55310	.00300
2.740	115 560	16.48400	6 22110	-98880	-73120	-1.03320	.14050	.55260	.00300
2.740	113 560	16 96940	6 48690	-83520	-73620	-99340	.13560	.55220	.00300
2.740	111 560	17 36930	6 88270	-68770	-73230	-1.02520	.12510	.55100	.00300
2.740	109 450	17 80230	7 30700	-53210	-73840	-1.02660	.13490	.54930	.00300
2.740	113 570	15 24470	5 44710	-1.31390	-66760	-1.00480	.12680	.55420	.00300
GRADIENT		00000	00000	00000	.00000	.00000	.00000	.00000	.00300

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TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

MSFC THTSDY (SABF) SRB WITH ALL PROTUBERANCES

(R14049, 1 10 JUL 75 )

## REFERENCE DATA

SREF =	5020 SQ IN.	X46P =	5.7210 IN.	XS
LREF =	.8000 IN.	Y46P =	.0000 IN.	YS
BREF =	.8000 IN.	Z46P =	.0000 IN.	ZS
SCALE =	.0025			

BETA = 000 P41 = 135.000  
NOZZLE = 000

### PARAMETRIC DATA

RUN NO. 358/ 0 RM/L = 7.26 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

NSFC T41604 (SABF) SR8 WITH ALL PROTUBERANCES

(R1HC50) 1 10 JUL 75 1

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. X5
LCRF	=	.8000	IN	YMRP	=	.0000	IN. Y5
BRCF	=	.8000	IN.	ZMRP	=	.0000	IN. Z5
SCALE	=	.0055					

## PARAMETRIC DATA

BETA	=	.000	PHI	=	135.003
NOZZLE	=	.000			

RUN NO.	84/ 0	RN/L = 5.28	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

RUN NO.	83/ 0	RN/L =	4.98	GRADIENT INTERVAL =	-5.00'	5.00
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MACH	ALPHA	C <sub>μ</sub>	CLM <sub>W</sub>	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CRP3
598	169 050	64380	-1 20830	-1 71900	.01520	-.34260	.01230	.73650	.07560	.09620	.05710
598	167 120	64960	-1 14890	-1 80030	.00640	-.36280	.03210	.72630	.05890	.08930	.05020
598	165 070	1 11000	-1 11000	-1 88170	.03670	-.45340	.03890	.70570	.07760	.07760	.07940
598	163 080	1 37380	-1 60680	-1 93850	.08920	-.41470	.03210	.59070	.02580	.06630	.06810
598	161 030	1 63400	-1 90630	-1 99160	.15930	-.20220	.08040	.67360	.01040	.05610	.05700
598	159 000	1 91060	-1 98830	-2 07260	.31630	-.16550	.11260	.65970	-.00580	.03680	.03770
598	156 980	2 23760	-1 53120	-2 14520	.55010	1 47640	.09200	.63920	-.02890	.00580	.01020
598	154 940	2 66900	-1 13770	-2 20450	.90580	2 48200	.10780	.62550	-.05570	.02270	-.01470
598	152 860	3 05040	-1 11810	-2 22030	.86670	3 10060	12040	.62130	-.09040	-.06630	-.06450
598	150 850	3 366810	-1 57910	-2 16470	.69840	2 18760	13270	.62160	-.08970	-.08970	-.08950
598	148 920	3 80800	-1 90730	-2 17580	.59370	1 49490	12220	.62420	-.18100	-.12190	-.10400
598	158 980	1 90510	-1 75320	-2 06960	.30220	17710	.09540	.65840	-.01560	.02960	.02780
GRADIENT		.00300	.00300	.00000	.00000	.00000	.00000	.00000	-.00000	.00000	.00000



MSFC TR-604 (SABF) SRB WITH ALL PROTUBERANCES

(R14050) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	50. IN.	XPRP =	5.7210	IN. XS
REF =	.8000	IN.	YPRP =	.0000	IN. YS
BRF =	.8000	IN.	ZPRP =	.0000	IN. ZS
SCALE =	.0095				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	135.000
NOZZLE	=	.000			

RUN NO. 02/ 0 RM/L = 6.29 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	81/ 0	RN/L =	8.70	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. X5  
LREF = .8000 IN. YMRP = .0000 IN. Y5  
BREF = .8000 IN. ZMRP = .0000 IN. Z5  
SCALE = .0055

BETA = .000  
NOZZLE = .000

PHI = 135.000

RUN NO. 100/ 0 AN/L = 7.08 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLMM	CA	CYN	CYH	CYH	CBL	XCP/L	CBP1	CBP2	CBP3
1.955	168.980	86650	-1.17330	-2.65280	-1.0810	-1.01100	-1.01100	-0.0140	.69380	-1.10840	-1.10780	-1.11480
1.955	166.870	1.24710	-1.31450	-2.67700	0.1190	.22160	.22160	0.0480	.66940	-1.1580	-1.11820	-1.12780
1.955	164.740	1.74930	-1.48360	-2.72500	-1.12640	-1.25660	-1.25660	0.0230	.65280	-1.3280	-1.13050	-1.13960
1.955	162.620	2.34310	-1.39450	-2.77540	-2.8640	-1.60220	-1.60220	0.1910	.63190	-1.4530	-1.14190	-1.15320
1.955	160.470	2.96320	-1.25600	-2.83160	-1.3210	-1.55240	-1.55240	0.2460	.61940	-1.5870	-1.15570	-1.16550
1.955	158.310	3.69900	-1.98380	-2.88830	-1.04220	-1.19370	-1.19370	0.2540	.60510	-1.7640	-1.17380	-1.18620
1.955	156.150	4.46560	-3.6770	-2.91170	-1.03110	-1.60290	-1.60290	0.3340	.59010	-2.0530	-1.19860	-1.20230
1.955	153.990	5.30010	-1.12290	-2.98380	-1.29640	-1.3800	-1.3800	.58530	.58530	-2.3650	-2.1260	-2.2340
1.955	151.810	6.02640	1.6820	-2.99530	-1.3710	-1.80680	-1.80680	.58110	.58110	-2.3300	-2.2210	-2.1930
1.955	149.730	6.53720	4.1350	-2.92830	-1.1020	-1.84620	-1.84620	.57820	.57820	-2.3250	-2.2120	-2.1820
1.955	147.690	7.19080	3.9620	-2.91150	-1.19170	-1.02330	-1.02330	.57890	.57890	-2.3410	-2.1880	-2.1580
1.955	145.730	3.68050	-1.74730	-2.84400	.03430	1.22590	1.22590	.59990	.59990	-1.7900	-1.7670	-1.8770
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 23/ 0 AN/L = 5.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLMM	CA	CYN	CYH	CYH	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	168.990	1.84660	-1.70110	-2.62580	-1.07320	-1.10250	-1.10250	-0.0360	.65090	-1.10280	-1.10300	-1.10410
2.740	167.030	1.26500	-1.68350	-2.66280	-1.04690	.01670	.01670	0.1670	.62750	-1.10580	-1.10700	-1.10340
2.740	164.980	1.69600	-1.56660	-2.70350	-1.08030	-1.10680	-1.10680	0.2970	.61060	-1.1130	-1.1120	-1.11200
2.740	162.910	2.17700	-1.44250	-2.74200	-1.4810	-1.25220	-1.25220	.00690	.60000	-1.1460	-1.1420	-1.1540
2.740	160.870	2.64970	-1.31120	-2.77110	-1.09810	-1.23360	-1.23360	.01250	.59300	-1.1810	-1.1550	-1.1730
2.740	158.770	3.20670	-1.16970	-2.81510	-1.07970	-1.35970	-1.35970	.02760	.58770	-1.2140	-1.1760	-1.1920
2.740	156.700	3.81190	0.1580	-2.83680	-1.09480	-1.57530	-1.57530	.09830	.58290	-1.2820	-1.2120	-1.2450
2.740	154.610	4.41780	0.8370	-2.86510	-1.11830	-1.70110	-1.70110	.09370	.58180	-1.3280	-1.2140	-1.2040
2.740	152.510	5.10900	4.2360	-2.90170	-1.15970	-1.84120	-1.84120	.03780	.57650	-1.4090	-1.2550	-1.2310
2.740	150.420	5.77150	5.6300	-2.90120	-1.18620	-1.71540	-1.71540	.02250	.57540	-1.4560	-1.2240	-1.1970
2.740	148.430	6.40490	6.9950	-2.87470	-2.2300	-1.72480	-1.72480	.04740	.57450	-1.4920	-1.1940	-1.1530
2.740	146.770	3.22550	-2.1050	-2.81260	-1.06880	-1.42170	-1.42170	.02150	.56870	-1.2200	-1.1750	-1.1940
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC INT604 (SABF) SRB WITH ALL PROTRUSANCES

(RIH050) ( 10 JUL 75 )

# REFERENCE DATA

SREF = 5030 SQ. IN. XREF = 5.7210 IN. XS  
 LREF = 8000 IN. YREF = .0000 IN. YS  
 BREF = 8000 IN. ZREF = .0000 IN. ZS  
 SCALE = 0055

BETA = .000  
 NOZZLE = .000  
 PHI = 135.000

# PARAMETRIC DATA

RUN NO. 24/ 0 RW/L = 7.13 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNN	CLNN	CA	CYM	CYLM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	169.020	.81990	-.26800	-2.55280	-.05370	-.07070	.6170	.61000	-.06610	-.06630	-.06650
3.480	167.060	1.12470	-.21460	-2.59160	-.06890	-.14450	.00910	.59890	-.06620	-.06670	-.06700
3.480	165.000	1.52660	-.14200	-2.63170	-.08560	-.16100	-.00460	.59100	-.06680	-.06570	-.06760
3.480	162.940	1.94390	-.02750	-2.68140	-.10240	-.20560	.01550	.58450	-.06390	-.06200	-.06300
3.480	160.880	2.39550	.07530	-2.71280	-.09590	-.20620	.02010	.58080	.06080	-.05580	-.05340
3.480	158.820	2.92870	.21120	-2.76720	-.08830	-.25800	.01240	.57750	-.07520	-.06820	-.06490
3.480	156.760	3.49110	.36850	-2.80990	-.11110	-.41320	.02700	.57480	-.07870	-.06570	-.06720
3.480	154.700	4.05460	.42810	-2.83580	-.12510	-.53800	.02820	.57480	-.06300	-.05420	-.05650
3.480	152.640	4.68130	.48300	-2.87190	-.15040	-.53780	.01850	.57500	-.06250	-.05170	-.05320
3.480	150.580	5.27460	.55110	-2.87210	-.18380	-.54770	.03130	.57430	-.06440	-.04920	-.05030
3.480	148.520	5.91490	.56820	-2.85300	-.23300	-.55140	.04470	.57550	-.06590	-.04690	-.04730
3.480	146.460	6.54480	.15360	-2.76100	-.08740	-.28710	.02030	.57800	-.07630	-.06780	-.06810
GRADIENT		00000	00000	.00000	.00000	.00000	.00000	00000	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THY 604, SA-8F

PAGE 139

MSFC THY 604 (SABF) SRB WITH ALL PROTUBERANCES

(R1 051) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

BETA = .000 PHI = 180.000  
 NOZZLE = .000

## PARAMETRIC DATA

RUN NO. 202/ 0 RN/L = 7.08 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	-9.620	-1.30910	-2.38580	.84740	.02450	-.08090	-.00460	.43470	-.07220	-.08790	-.08810
3.480	-7.660	-.90430	-1.97330	.82170	.01000	-.03600	.00170	.40540	-.06520	-.08710	-.08770
3.480	-5.590	-.54700	-1.40270	.79600	-.02410	-.04610	-.01030	.37420	-.06180	-.08370	-.08560
3.480	-3.540	-.35150	-.86730	.79740	-.04300	-.00430	-.01520	.38210	-.05700	-.08360	-.08540
3.480	-1.490	-.14200	-.41710	.79240	-.03770	.00720	-.01050	.34390	-.05620	-.07940	-.08190
3.480	.540	.13340	-.14940	.80880	-.03840	-.01730	.04520	.67410	-.05520	-.08020	-.08120
3.480	2.590	.34240	.30240	.80890	-.04220	-.08910	.01760	.51130	-.05650	-.08200	-.08100
3.480	4.640	.54790	.92950	.80640	.00820	-.05100	-.02020	.44530	-.05840	-.08280	-.08100
3.480	6.730	.84000	1.48750	.84050	-.01130	-.07890	-.03620	.43890	-.06480	-.08570	-.08310
3.480	8.800	1.22570	1.98880	.86530	.00870	-.17400	-.04310	.45100	-.03960	-.08780	-.08620
3.480	10.740	1.67470	2.32540	.89630	.03960	-.26160	-.01320	.47010	-.07380	-.08890	-.08660
3.480	.570	.14730	-.14380	.80590	-.02970	.02180	-.01580	.63790	-.05570	-.08130	-.08270
GRADIENT		.11169	.21106	.00165	.00479	-.00830	-.00084	.01428	-.00015	-.00005	.00047

RUN NO. 203/ 0 RN/L = 5.67 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	-9.480	-1.24860	-1.52620	.67210	.05630	-.05660	.01730	.48370	-.04360	-.04900	-.04400
4.450	-7.550	-.92900	-1.33350	.66280	.04450	-.03180	.01250	.46630	-.04380	-.04990	-.04560
4.450	-5.520	-.60830	-1.07120	.62700	.01870	.03290	.04160	.43970	-.04180	-.04930	-.04660
4.450	-3.500	-.34330	-.78510	.62980	-.03700	.07480	.04480	.39680	-.04100	-.04950	-.04680
4.450	-1.470	-.14420	-.30030	.62120	.00310	.12260	.04180	.41350	-.03830	-.04830	-.04660
4.450	.540	.11930	-.15190	.63190	-.04050	-.00070	.00960	.68720	-.03610	-.04780	-.04600
4.450	2.550	.32140	.12260	.63660	-.04200	-.03740	-.02200	.55220	-.03690	-.04830	-.04540
4.450	4.590	.52160	.64720	.65120	-.00520	-.09960	-.00640	.48210	-.03730	-.04890	-.04560
4.450	6.640	.83870	1.04880	.66130	-.00370	-.01100	-.03630	.48140	-.04060	-.05010	-.04600
4.450	8.670	1.18720	1.41200	.69900	-.00670	-.12380	.00100	.48630	-.04320	-.05030	-.04620
4.450	10.580	1.50250	1.53550	.74180	.02210	-.20730	-.01960	.50000	-.04600	-.05150	-.04620
4.450	.560	.14890	-.12750	.63090	-.00510	-.02900	-.01890	.65320	-.04040	.04930	-.04720
GRADIENT		.10862	.16272	.00288	.00093	-.02516	-.00822	.01527	.00044	.00006	.00018

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H052) ( 10 JUL 75 )

## REFERENCE DATA

SRF = .5030 SQ. IN.  
LRF = .8000 IN.  
BRF = .8000 IN.  
SCALE = .0055

NOZZLE -  
JETA -

PHI - 180.000

### PARAMETRIC DATA

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RUN NO. 193/ 0 RN/L = 5.62 GRADIENT INTERVAL = -5.00/ 5.00

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[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(RIH053) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 50. IN. XHRP = 5.7210 IN. XS  
LREF = .8000 IN. YHRP = .0000 IN. YS  
BREF = .8000 IN. ZHRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = 180.000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 188/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYN	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	31.880	7.56090	4.74040	1.40450	.21610	-.45290	-.02800	.53220	-.08210	-.08320	-.07870
3.480	33.870	8.21730	5.20950	1.43230	.23180	-.57120	-.04510	.53170	-.08400	-.07380	-.08070
3.480	35.970	8.94090	5.67240	1.47150	.24990	-.62900	-.05640	.53160	-.08330	-.06650	-.07860
3.480	38.050	9.64850	5.96620	1.52380	.26810	-.76520	-.06910	.53290	-.08440	-.06810	-.07230
3.480	40.120	10.33390	6.24350	1.58530	.30990	-.89200	-.07410	.53410	-.08400	-.06810	-.07240
3.480	42.250	11.01020	6.96220	1.59450	.31720	-.91030	-.07590	.53180	-.08060	-.05660	-.07310
3.480	44.350	11.67010	7.68560	1.60180	.31720	-.90300	-.11640	.52960	-.08490	-.06810	-.07500
3.480	46.450	12.30040	8.44420	1.59610	.31620	-.88190	-.04530	.52740	-.08550	-.06100	-.07100
3.480	48.570	12.88630	9.22510	1.55910	.31440	-.87820	-.04440	.52500	-.07700	-.05660	-.07420
3.480	50.670	13.48270	10.03730	1.50450	.31890	-.92760	-.05480	.52260	-.07670	-.05580	-.07520
3.480	52.660	14.04650	10.72480	1.42880	.33230	-.98030	-.04030	.52110	-.07090	-.05130	-.07610
3.480	42.250	11.03200	7.01930	1.58920	.30830	-.93830	-.06670	.53150	-.07960	-.06830	-.07380
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 189/ 0 RN/L = 5.54 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYN	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	31.350	6.98380	3.32360	1.40490	.18380	-.47210	-.02790	.54150	-.04340	-.03930	-.04080
4.450	33.290	7.58530	3.50840	1.47300	.19660	-.51830	-.04440	.54570	-.04480	-.03650	-.04140
4.450	35.770	8.23890	3.70530	1.52120	.32640	-.68090	-.07750	.54670	-.04500	-.02980	-.04120
4.450	37.390	8.97130	4.09860	1.58950	.25600	-.84830	-.06080	.54610	-.04700	-.03210	-.04140
4.450	39.450	9.61740	4.77100	1.61770	.11170	-.95090	-.04690	.54290	-.04740	-.03210	-.04060
4.450	41.500	10.18120	5.45590	1.60610	.26970	-.82640	-.08860	.53970	-.04640	-.02760	-.03960
4.450	43.550	10.81900	6.19500	1.60810	.25550	-.79030	-.06380	.53670	-.04640	-.03070	-.03970
4.450	45.600	11.39750	6.81810	1.57940	.25360	-.86550	-.07960	.53460	-.04480	-.02880	-.03950
4.450	47.680	12.00310	7.53580	1.54140	.27960	-.91990	-.06970	.53220	-.04240	-.02740	-.03940
4.450	49.730	12.55160	8.27690	1.47930	.29000	-.1.00260	-.09820	.52960	-.04240	-.02340	-.03940
4.450	51.660	13.10610	8.98420	1.42390	.28840	-.1.00890	-.07970	.52740	-.04260	-.01810	-.04100
4.450	41.490	10.12560	5.40850	1.61170	.26990	-.82410	-.13570	.53980	-.04520	-.02500	-.04080
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE 10 JUL 73

TABULATED SOURCE DATA, MSFC TWT 804, SA-8F

201 3019

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H054) (10 JUL 55)

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP	=	5.7210 IN. XS
LRF	=	.8000 IN.	YMRP	=	.0000 IN. YS
BREF	=	.8000 IN.	ZMRP	=	.0000 IN. ZS
SCALE	=	.0055			

### PARAMETRIC DATA

BETA - .000 PHI - 180.000  
NOZZLE - .000

RUN NO. 409/ 0 RN/L = 5.36 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 410/ 0 RN/L = 5.09 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

(R14054) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	YMRP	=	5.7210	N. YS
LREF	=	.8000	IN.	YMRP	=	.0000	N. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	N. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	P.41	=	180.000
NOZZLE	=	.000			

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RUN NO. 411/ 0 RI4/L = 6.42 GRADIENT INTERVAL = -5.00/ 5.00

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[illegible]

RUN NO.	412/ 0	RN/L =	6.90	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]



## REFERENCE DATA

XSREF =	5030	SQ. IN.	XMRP =	5.7210	IN. XS
LSREF =	.8000	IN.	YMRP =	.0000	IN. YS
BRREF =	.8000	IN.	ZMRP =	.0000	IN. ZS
SCALE =	.0055				

BETA	=	.000	PHI	=	180.000
NOZZLE	=	.000			

### PARAMETRIC DATA

RM NO	413/ 0	RM/L =	7.21	GRADIENT INTERVAL =	-5.00/	5.00
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WACH	ALPHA	CNN	CLNN	CA	CYM	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
1.987	70.570	18.95920	14.56600	1.09380	.32700	-.44590	.06680	.51930	.00000	.00000	.00000
1.987	72.470	18.95720	14.60890	1.03210	.31550	-.42990	.06130	.52020	.00000	.00000	.00000
1.987	74.490	19.22400	14.69120	.97610	.30430	-.44910	.04950	.52100	.00000	.00000	.00000
1.987	76.480	19.54490	14.68430	.92190	.28300	-.40000	.06330	.52210	.00000	.00000	.00000
1.987	78.450	19.69390	14.46340	.85710	.28080	-.45340	.05030	.52350	.00000	.00000	.00000
1.987	80.460	19.83060	14.25090	.79110	.28480	-.50490	.05020	.52470	.00000	.00000	.00000
1.987	82.460	19.95350	14.17360	.70560	.29090	-.56590	.06520	.52540	.00000	.00000	.00000
1.987	84.450	20.02500	13.97900	.62570	.29770	-.61640	.07090	.52640	.00000	.00000	.00000
1.987	86.440	20.08680	13.75990	.54150	.29050	-.64170	.06010	.52750	.00000	.00000	.00000
1.987	88.450	20.11640	13.55270	.46000	.28380	-.62120	.07820	.52940	.00000	.00000	.00000
1.987	90.310	20.07980	13.19770	.37940	.29240	-.64400	.07170	.52980	.00000	.00000	.00000
1.987	80.460	19.80070	14.22000	.78610	.27250	-.53910	.05510	.52480	.00000	.00000	.00000
1.987	82.460	19.83060	14.25090	.79110	.28480	-.50490	.05020	.52470	.00000	.00000	.00000
1.987	84.450	20.02500	13.97900	.62570	.29770	-.61640	.07090	.52640	.00000	.00000	.00000
1.987	86.440	20.08680	13.75990	.54150	.29050	-.64170	.06010	.52750	.00000	.00000	.00000
1.987	88.450	20.11640	13.55270	.46000	.28380	-.62120	.07820	.52940	.00000	.00000	.00000
1.987	90.310	20.07980	13.19770	.37940	.29240	-.64400	.07170	.52980	.00000	.00000	.00000
1.987	80.460	19.80070	14.22000	.78610	.27250	-.53910	.05510	.52480	.00000	.00000	.00000
1.987	82.460	19.83060	14.25090	.79110	.28480	-.50490	.05020	.52470	.00000	.00000	.00000
1.987	84.450	20.02500	13.97900	.62570	.29770	-.61640	.07090	.52640	.00000	.00000	.00000
1.987	86.440	20.08680	13.75990	.54150	.29050	-.64170	.06010	.52750	.00000	.00000	.00000
1.987	88.450	20.11640	13.55270	.46000	.28380	-.62120	.07820	.52940	.00000	.00000	.00000
1.987	90.310	20.07980	13.19770	.37940	.29240	-.64400	.07170	.52980	.00000	.00000	.00000
1.987	80.460	19.80070	14.22000	.78610	.27250	-.53910	.05510	.52480	.00000	.00000	.00000
1.987	82.460	19.83060	14.25090	.79110	.28480	-.50490	.05020	.52470	.00000	.00000	.00000
1.987	84.450	20.02500	13.97900	.62570	.29770	-.61640	.07090	.52640	.00000	.00000	.00000
1.987	86.440	20.08680	13.75990	.54150	.29050	-.64170	.06010	.52750	.00000	.00000	.00000
1.987	88.450	20.11640	13.55270	.46000	.28380	-.62120	.07820	.52940	.00000	.00000	.00000
1.987	90.310	20.07980	13.19770	.37940	.29240	-.64400	.07170	.52980	.00000	.00000	.00000
1.987	80.460	19.80070	14.22000	.78610	.27250	-.53910	.05510	.52480	.00000	.00000	.00000

RUN NO. 414/ 0 RN/L = 5.23 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

IRIH0541 ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0095

PARAMETRIC DATA

BETA = .000 PHI = 180.000  
NOZZLE = .000

RUN NO. 415/ 0 RN/L = 7.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	70.440	17.56120	13.79690	1.16840	.30210	-.60320	.00790	.51930	.00000	.30000	.00100
3.480	72.320	17.90030	13.95810	1.11240	.28880	-.61370	-.02120	.51980	.00000	.00000	.00300
3.480	74.350	18.24730	14.26580	1.03830	.29780	-.59900	.00050	.51960	.00000	.00000	.00300
3.480	76.350	18.57730	14.38070	.97510	.30090	-.59830	.01200	.52020	.00000	.00000	.00300
3.480	78.350	18.76320	14.25700	.92040	.28980	-.57630	-.00370	.52140	.00000	.00000	.00300
3.480	80.340	18.94080	14.14800	.84960	.28530	-.59960	.00130	.52240	.00000	.00000	.00000
3.480	82.350	19.11720	13.93820	.77830	.29110	-.57450	-.00080	.52390	.00000	.00300	.00000
3.480	84.330	19.29510	13.74820	.70280	.28130	-.53300	.01140	.52520	.00000	.00000	.00000
3.480	86.320	19.39200	13.51240	.60630	.27010	-.53010	-.00640	.52650	.00000	.00000	.00000
3.480	88.330	19.50510	13.26810	.55770	.26040	-.47780	-.00900	.52790	.00000	.00000	.00000
3.480	90.200	19.63420	13.05850	.47040	.25790	-.44030	.01180	.52910	.00000	.00000	.00000
3.480	80.340	18.99510	14.21220	.85680	.30990	-.56120	.00640	.52230	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRB WITH ALL PROTD DEMANDS

MINUTES (10 JUL 75)

## REFERENCE DATA

SREF	=	.5030	SQ	IN	XRRP	=	5.7210	IN.	XS
LREF	=	.8300	IN.		YRRP	=	.0000	IN.	YS
BREF	=	.8000	IN.		ZRRP	=	.0000	IN.	ZS
SCALE	=	.0055							

## PARAMETRIC DATA

BETA = .000 PHI = 180.000  
NOZZLE = .000

RUN NO. 318 / 0    RN/L = 5.29    GRADIENT INTERVAL = -5.00 / 5.00

[illegible]

RUN NO.	319/ 0	RM/L = 5.04	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

(F 4055) 10 JUL 75

MSFC TW180N (SABF) SRB WITH ALL PROTUBERANCES

PARAMETRIC DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN XS  
LREF = 3000 IN YMRP = .0000 IN YS  
BREF = 8000 IN ZMRP = .0000 IN ZS  
SCALE = 0055

RUN NO. 320/ 0 RM/L = 6.39 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLNH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
901	105 570	15.23510	-2.19590	-31130	1.48250	-31930	.06630	.59510	.00000	.00000	.00000
901	107 680	15.38250	-1.41980	-12820	1.47390	-40870	.09200	.59090	.00000	.00000	.00000
901	105 700	15.64090	-.50280	01880	1.51330	-49190	.07460	.58630	.00000	.00000	.00000
901	103 730	15.75970	-.49050	17500	1.50170	-56440	.07360	.58080	.00000	.00000	.00000
901	101 760	15.02700	1.52860	30880	1.50030	-65540	.07340	.57560	.00000	.00000	.00000
901	99 820	16.15630	2.91500	44090	1.55020	-71210	.08020	.56870	.00000	.00000	.00000
901	97 860	16.33510	4.33140	57060	1.56420	-70600	.08350	.56170	.00000	.00000	.00000
901	95 910	16.69040	5.94500	70420	1.62280	-63380	.08450	.55430	.00000	.00000	.00000
901	93 930	16.84670	7.45520	79850	1.61460	-53500	.07970	.54730	.00000	.00000	.00000
901	91 990	16.90220	8.65190	87540	1.67950	-34220	.06640	.530	.00000	.00000	.00000
901	90 110	16.92410	9.96560	94730	1.65580	-03000	.07130	.530	.00000	.00000	.00000
901	99 820	16.29290	3.16560	41860	1.53330	-59390	.08620	.56750	.00000	.00000	.00000
901	GRADIENT	00000	00000	00000	00000	00000	00000	00000	.00000	.00000	.00000

RUN NO. 321/ 0 RM/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLNH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.194	109 720	18.91117	6.78910	-57300	1.74750	.61790	.13950	.55410	.00000	.00000	.00000
1.194	107 820	19.18120	7.34800	-43250	1.73820	.59830	.13610	.55210	.00000	.00000	.00000
1.194	105 830	19.42120	7.74630	-28900	1.71620	.77510	.14200	.55080	.00000	.00000	.00000
1.194	103 840	19.69130	8.36380	-15050	1.74620	.74650	.14810	.54870	.00000	.00000	.00000
1.194	101 860	19.91120	8.86840	-02190	1.77450	.64350	.15810	.54700	.00000	.00000	.00000
1.194	99 890	19.97830	9.13450	12140	1.78920	.49940	.16660	.54610	.00000	.00000	.00000
1.194	97 900	20.12930	9.69230	24420	1.80400	.50380	.13870	.54410	.00000	.00000	.00000
1.194	95 930	20.26020	10.41520	35940	1.82610	.46620	.14470	.54150	.00000	.00000	.00000
1.194	93 930	20.49320	11.21170	47140	1.83740	.47870	.15220	.53870	.00000	.00000	.00000
1.194	91 980	20.64870	12.08840	.56890	1.82400	.54440	.13950	.53560	.00000	.00000	.00000
1.194	90 090	20.72430	12.80720	66700	1.82690	.58520	.14900	.53300	.00000	.00000	.00000
1.194	99 890	19.86600	9.10380	10670	1.78750	.49810	.14420	.54600	.00000	.00000	.00000
1.194	GRADIENT	00000	00000	00000	00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC INT1604 (5A08) 528 WITH ALL PROTOGERANCES

(R14055) (10 APR '55)

## REFERENCE DATA

SCALE	=	5030 SQ. IN	XMAP	=	5 7210 IN. X5
MAP	=	8000 IN.	YMAP	=	0000 IN. Y5
BOFF	=	8000 IN	ZMAP	=	0000 IN. Z5
SCALE	=	0055			

BETA	•	000	PHI	•	180 000
NOZZLE	•	372200			
		• 000			

### PARAMETRIC DATA

RUN NO. 127/ 0 RM/L = 7.32 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO 328/ 0 RN/L 5.36 GRADIENT INTERVAL -5 00/ 5 00

MACH	ALPHA	CMA	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	109.960	17.61260	10.17050	-58560	73600	-34710	-0.7130	53630	00000	00000	00000
2.740	108.060	18.01660	10.56220	-45960	75660	-37460	-0.7050	53550	00000	00000	00000
2.740	106.040	18.43510	11.04700	-30520	77660	-04700	06950	53450	00000	00000	00000
2.740	104.050	18.83560	11.48340	-16730	79040	-50480	08740	53360	00000	00000	00000
2.740	102.050	19.18320	11.93320	-0480	79320	-51540	-0.7470	53360	00000	00000	00000
2.740	100.060	19.46110	12.43280	08180	79520	-52520	06770	53130	00000	00000	00000
2.740	98.070	19.68480	12.89520	19950	77950	-48500	08220	53010	00000	00000	00000
2.740	96.070	19.93010	13.18710	30140	80680	-36270	06010	52940	00000	00000	00000
2.740	94.080	20.08190	13.50710	39500	75540	-26680	06430	52850	00000	00000	00000
2.740	92.090	20.20310	13.84970	50290	75820	-22220	07590	52740	00000	00000	00000
2.740	90.200	20.28800	14.21470	59680	75300	-18950	10040	52620	00000	00000	00000
2.740	100.080	19.44370	12.40890	-07190	79500	-50410	06590	53130	00000	00000	00000
GRADIENT		00000	00000		00000	-0.0000	-0.0000	00000	00000	00000	00000

TABLED SOURCE DATA, MSFC TWT 604, SA 0F  
C TWISOM (SABF) SRB WITH ALL PROTOB-PAYIES

(R1H056) 10 JUL 75

PARAMETRIC DATA

BETA = 000 PHI = 180.000  
NOZZLE = 000

REFERENCE DATA

SREF = 5330 50 IN XMRP = 5 7210 IN XS  
LREF = 4000 50 IN YMRP = 0000 IN YS  
BREF = 0000 50 IN ZMRP = 0000 IN ZS  
SCALE = 0.055

RUN NO. 325/ 0 RV/L = 5.37 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
400	129 520	9 01870	-5 67440	-1 73880	6 64010	-1 04230	06040	63470	00000	00000	00000
400	127 620	9 34710	-5 69510	-1 66090	6 74490	-1 59070	04590	63310	00000	00000	00000
400	125 600	9 57630	-5 37470	-1 57420	7 16370	-2 07080	02960	62320	00000	00000	00000
400	123 580	9 80950	-4 78270	-1 44870	7 35790	-2 35730	04000	62310	00000	00000	00000
400	121 610	10 11570	-4 28320	-1 34350	7 47010	-1 81060	03840	61790	00000	00000	00000
400	119 640	10 26920	-3 51670	-1 20960	6 86300	1 03940	05840	61130	00000	00000	00000
400	117 640	10 54270	-3 18330	-1 08470	6 61050	1 14980	04170	60800	00000	00000	00000
400	115 640	10 82210	-2 68370	-96500	6 03230	78920	04200	60360	00000	00000	00000
400	113 600	11 06050	-2 12670	-87060	5 85900	70740	02080	59910	00000	00000	00000
400	111 650	11 25020	-1 52360	-76260	5 67420	16590	03880	59440	00000	00000	00000
400	109 760	11 51120	-76860	-64660	5 07280	-1 02060	01780	58880	00000	00000	00000
400	119 640	10 17250	-3 56930	-1 20950	6 94490	1 24750	05670	61300	00000	00000	00000
GRADIENT		00100	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 324/ 0 RV/L = 5 07 GRADIENT INTERVAL = 5 00/ 5 00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
599	129 440	9 54200	-5 61030	-1 72430	5 27680	72520	04780	63130	00000	00000	00000
599	127 530	10 07000	-4 89830	-1 64010	4 71620	1 29700	03690	62280	00000	00000	00000
599	125 540	10 50770	-3 90110	-1 52150	4 48640	1 86840	02830	61370	00000	00000	00000
599	123 550	10 79300	-3 14500	-1 38270	4 47700	2 52280	03260	60710	00000	00000	00000
599	121 540	11 13350	-2 95980	-1 26150	4 23220	3 33590	02480	60500	00000	00000	00000
599	119 560	11 38950	-3 09460	-1 16240	4 04760	2 76650	03120	60550	00000	00000	00000
599	117 560	11 78190	-2 68230	-1 04340	4 11370	2 51710	03810	60190	00000	00000	00000
599	115 560	12 13190	-2 32300	-89010	3 73230	1 84290	00890	59900	00000	00000	00000
599	113 540	12 34290	-2 22950	-72710	2 87100	27310	00820	59810	00000	00000	00000
599	111 560	12 50910	-2 14430	-56640	2 65070	-48190	01730	59740	00000	00000	00000
599	109 640	12 76800	-2 03810	-40900	2 50970	-84710	00670	59650	00000	00000	00000
599	119 560	11 36630	-3 14690	-1 17130	4 00830	2 77880	04040	60600	00000	00000	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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MSFC INT604 (SABF) SRB WITH ALL PROTECTORANCES

(R14058) ( 10 JUL 75 )

### REFERENCE DATA

SREF	=	5030 S/ IN.	=	5.1210 IN. XS
LREF	=	8000 IN	=	.0000 IN. YS
BREF	=	8050 IN	=	.0000 IN. ZS
SCALE	=	7055		

BETA  
NOZZLE

PHI - 180.000  
PHI - 180.000

### PARAMETRIC DATA

Run No.	323/ D	R/L	6.39	GRADIENT INTERVAL	-5.00/	5.00
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MACH	ALPHA	CM1	CLM1	CA	CYN	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
899	129 160	10.99540	-6.74910	-1.82120	2.73480	.35020	.09130	.63340	.00000	.00000	.00000
899	127 210	11.59300	-6.94460	-1.69450	2.67440	.50690	.10040	.63220	.00000	.00000	.00000
899	125 200	12.22540	-6.90670	-1.57180	2.44360	1.15960	.09470	.62950	.00000	.00000	.00000
899	123 190	12.86130	-6.55180	-1.40920	2.26590	1.17180	.08340	.62490	.00000	.00000	.00000
899	121 190	13.41010	-5.98910	-1.25040	2.07090	.65830	.06250	.61980	.00000	.00000	.00000
899	119 230	13.70790	-5.10140	-1.10420	1.89950	-.07870	.05500	.61370	.00000	.00000	.00000
899	117 220	14.01940	-4.65990	-.91280	1.81570	-.53080	.06620	.61050	.00000	.00000	.00000
899	115 240	14.31190	-4.45500	-.73330	1.69040	-.72660	.06200	.60880	.00000	.00000	.00000
899	113 220	14.92140	-3.75580	-.59270	1.48370	-.48830	.05800	.60390	.00000	.00000	.00000
899	111 240	15.20610	-2.89380	-.41520	1.50590	-.47370	.06700	.59890	.00000	.00000	.00000
899	109 350	15.46760	-2.15740	-.25130	1.51380	-.44470	.05650	.59470	.00000	.00000	.00000
899	119 220	13.83230	-5.08930	-1.11580	1.90070	-.11570	.06040	.61340	.00000	.00000	.00000
899	117 220	14.01940	-4.65990	-.91280	1.81570	-.53080	.06620	.61050	.00000	.00000	.00000

RUN NO. 322/ 0 RM/L = 6.81 GRADIENT INTERVAL = -5.00/ 30

[illegible]

DATE 10 JUL 75 SOURCE DATA MSIC INT 504 SA-8F

MSIC 4 504 (LOW) SRB WITH ALL NOTED DEFICIENCIES

PARAMETRIC DATA

SREF = 5030 50 IN AMRP = 5 7210 IN XS BETA = 000 PHI = 180.030  
LREF = 8000 IN PMRP = 0000 IN YS NOZZLE = 000  
BREF = 8000 IN 2-MRP = 0000 IN ZS  
SCALE = 0055

REFERENCE DATA

RUN NO. 326/ 0 RV/L = 7 30 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CIN	CLIM	CA	CYM	CYN	CEL	XCP/L	CBP1	CBP2	CBP3
1 500	129 520	12 93400	5 15540	-1 09110	70960	35430	11033	55070	00000	00000	00000
1 500	129 520	13 54000	5 59340	-1 14460	72890	31250	99160	54380	00000	00000	00000
1 500	129 520	14 14600	6 08590	-1 17580	73300	24250	10770	54380	00000	00000	00000
1 500	129 520	14 75200	6 55920	-1 17580	72190	14110	11840	54380	00000	00000	00000
1 500	129 520	15 35800	7 03430	-1 17580	71910	09750	11540	54380	00000	00000	00000
1 500	129 520	15 96400	7 50940	-1 17580	72570	- 00000	12040	54380	00000	00000	00000
1 500	129 520	16 57000	7 98450	-1 17580	72450	- 00000	11540	54380	00000	00000	00000
1 500	129 520	17 17600	8 45960	-1 17580	73400	- 00000	12130	54380	00000	00000	00000
1 500	129 520	17 78200	8 93470	-1 17580	74000	- 00000	11970	54380	00000	00000	00000
1 500	129 520	18 38800	9 40980	-1 17580	81260	- 00000	10910	54380	00000	00000	00000
1 500	129 520	18 99400	9 88490	-1 17580	82900	- 00000	11070	54380	00000	00000	00000
1 500	129 520	19 60000	10 36000	-1 17580	72330	00000	10420	54380	00000	00000	00000
1 500	129 520	20 20600	10 83510	-1 17580	00000	00000	00000	00000	00000	00000	00000

RUN NO. 329 0 RV/L = 5 34 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CIN	CLIM	CA	CYM	CYN	CEL	XCP/L	CBP1	CBP2	CBP3
2 700	129 560	12 14390	5 47730	-2 05680	49850	- 08030	09590	54660	00000	00000	00000
2 700	127 690	12 75040	6 11580	-1 93470	54130	- 07210	08920	54440	00000	00000	00000
2 700	125 660	13 46740	6 65500	-1 79980	55250	- 10300	09450	54310	00000	00000	00000
2 700	123 650	14 18440	7 09110	-1 65300	58150	- 11910	09760	54220	00000	00000	00000
2 700	121 650	14 89940	7 53660	-1 49010	60400	- 18070	07710	54120	00000	00000	00000
2 700	119 650	15 61440	8 01700	-1 31760	63190	- 21730	07630	54040	00000	00000	00000
2 700	117 650	16 32940	8 55010	-1 15100	63320	- 25580	10580	53910	00000	00000	00000
2 700	115 640	17 04440	9 08360	- 99530	66340	- 26270	11420	53880	00000	00000	00000
2 700	113 640	17 75940	9 61710	- 83490	69460	- 31300	11140	53830	00000	00000	00000
2 700	111 640	18 47440	10 15060	- 67340	72420	- 36810	09590	53780	00000	00000	00000
2 700	109 640	19 18940	10 68210	- 52510	74620	- 42650	09060	53720	00000	00000	00000
2 700	107 640	20 00000	11 21360	- 38080	76940	- 48510	10470	54030	00000	00000	00000
2 700	105 640	20 81100	11 74510	- 23250	00000	- 54400	00000	00000	00000	00000	00000



CAVE 10 JUL 75

TABLED SOURCE DATA. MSFC INT 604, SA-BF

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MSFC TM1604 (SARF) SSB WITH ALL PROTEUBANCES

(R14056) (10 JUL 75)

REFERENCE DATA

SREF	=	5030	SQ. IN.	X999	=	5.7210	IN. XS
LREF	=	8000	IN.	Y999	=	.0000	IN. YS
BBREF	=	8000	IN.	Z999	=	.0000	IN. ZS
SCALE	=	0055					

BETA = .000 PHI = 180.000  
NO. ZLE = .000

### PARAMETRIC DATA

RUN NO. 330/ 0    RN/L = 7.22    GRADIENT INTERVAL = -5.0C/ 5.00

[illegible]

REFERENCE DATA  
SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = .0000 IN. YS  
BREF = 8000 IN ZMRP = .0000 IN. ZS  
SCALE = 0055  
PARAMETRIC DATA  
BETA = .000 PHI = 180.000  
NOZZLE = 000

RUN NO. 37/ 0 RN/L = 3.14 GRADIENT INTERVAL = -5.00/ 5.00											
MACH	ALPHA	CNM	CLMM	CA	CYM	CYHM	CBL	XCP/L	CBP1	CBP2	CBP3
.389	148.770	4.45980	.54370	-2.11850	2.06510	5.24280	.03870	.57340	-.06350	-.06180	-.08100
.389	146.840	4.34350	.24880	-2.11760	2.38490	4.44470	.02620	.57930	-.15230	-.07630	-.06600
.389	144.730	5.54230	.23550	-2.08720	2.71590	3.99820	.03550	.57890	-.18050	-.10580	-.11980
.389	142.760	6.17690	.54140	-2.04830	3.10950	4.51290	.02230	.57490	-.25230	-.15450	-.15700
.389	140.720	6.70600	.67460	-2.00440	3.50970	5.07770	.04170	.57520	-.29660	-.20350	-.22140
.389	138.630	7.03730	.45550	-1.92340	3.82690	5.56210	.04060	.57810	-.36700	-.22560	-.18650
.389	136.550	7.40990	.00900	-1.84870	3.99640	4.70310	.04290	.58330	-.44320	-.23660	-.28730
.389	134.510	9.25740	-.81680	-1.72840	4.40830	-6.94300	-.05830	.59060	-.61300	-.20260	-.20140
.389	132.420	10.02980	-.80010	-1.65400	4.11020	-8.30260	-.00190	.56930	-.70470	-.24130	-.19570
.389	130.400	10.63390	-1.17530	-1.60520	4.19070	-8.06890	-.04060	.59240	-.87000	-.27220	-.18840
.389	128.480	11.01890	-1.25450	-1.51860	4.21450	-7.66460	-.00590	.59270	-1.04250	-.31520	-.25090
.389	126.590	7.03730	.40760	-1.94090	3.90430	5.53600	.01880	.57860	-.33810	-.23070	-.17230
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 38/ 0 RN/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00											
MACH	ALPHA	CNM	CLMM	CA	CYM	CYHM	CBL	XCP/L	CBP1	CBP2	CBP3
.597	148.600	5.00120	.62410	-2.19750	2.60150	6.45200	.03980	.57320	-.08330	-.08060	-.06100
.597	146.650	5.31100	-.20080	-2.15330	3.08830	3.81620	.03850	.58650	-.14840	-.09510	-.07260
.597	144.580	5.93160	-.30950	-2.11570	3.50910	3.28850	.04290	.58760	-.19370	-.11880	-.10270
.597	142.520	6.65430	-.26050	-2.06920	4.10540	2.22740	.08350	.58660	-.24270	-.16750	-.15320
.597	140.490	6.95190	-.06560	-2.05420	4.42520	3.48280	.03290	.58410	-.31340	-.19440	-.13090
.597	138.400	7.83320	-.13740	-1.95720	4.15570	1.57040	-.00530	.58430	-.43120	-.23770	-.20820
.597	136.230	9.51190	-.53310	-1.86380	4.70090	-6.55370	-.00920	.58750	-.73940	-.20630	-.19730
.597	134.150	10.44370	-.41620	-1.79120	3.96020	-8.28710	.01180	.58650	-.85210	-.24660	-.16020
.597	131.990	11.51770	-1.46810	-1.71930	3.08710	-9.14680	.00850	.59380	-.80930	-.26970	-.15820
.597	129.950	11.89890	-1.96560	-1.62250	3.67400	-7.00020	.02140	.59660	-.82380	-.30220	-.17860
.597	128.040	12.37230	-1.17640	-1.57200	3.83070	-5.09620	.00330	.59110	-1.05730	-.35230	-.21170
.597	126.390	7.97050	-.26420	-1.99150	4.74070	.77070	.01180	.58610	-.64020	-.18050	-.27780
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H057) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	YMRP	=	\$ .7210	IN. YS
LREF	=	.8000	IN.	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

### PARAMETRIC DATA

BETA = .000 PHI = 180.000  
 NOZZLE = 000

PRIN NO.	39/ 0	RN/L	6.30	GRADIENT INTERVAL	-5.00/	5.00
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MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.901	148.000	6.01100	-1.32220	-2.44630	2.81830	3.77760	.07160	.60130	-.11660	-.11710	-.10880
.901	145.910	6.65670	-3.15930	-6.65670	3.44230	-.83190	.05750	.62210	-.08480	-.08950	-.15000
.901	143.790	7.27180	-3.73030	-2.28000	3.55760	-.38600	.06010	.52520	-.10710	-.09710	-.15990
.901	141.620	7.98020	-4.31320	-2.22420	3.55760	-.55750	.05730	.62750	-.19050	-.10900	-.16590
.901	139.420	9.51820	-3.58870	-2.20290	2.82050	-.58620	.07500	.61410	-.36650	-.15600	-.19960
.901	137.230	10.36830	-4.17730	-2.11680	2.68040	-.83620	.07660	.61620	-.40980	-.16230	-.4360
.901	135.160	10.39670	-5.46840	-2.01030	2.39540	.27980	.09020	.62630	-.44350	-.17440	-.3280
.901	132.040	10.96950	-6.15550	-1.91950	2.29040	.10550	.09180	.62910	-.52510	-.20840	-.12110
.901	130.860	11.62350	-7.01170	-1.75390	2.17990	-.41060	.11130	.63250	-.60110	-.25620	-.12240
.901	128.720	12.45070	-7.24770	-1.61440	1.89920	-.122950	.08260	.63090	-.67490	-.29480	-.14770
.901	126.680	13.37600	-7.28310	-1.47950	1.44350	-1.87040	.07260	.62760	-.71440	-.32630	-.16500
.901	137.230	10.43920	-4.23270	-2.11560	2.75010	-.95840	.09000	.61640	-.41.60	-.17360	-.13100
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.0000000000	.00000	.100000

RUN NO.	40/ 0	RN/L =	6.71	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

PARAMETRIC DATA

REFERENCE DATA  
MACH ALPHA CNH CLMH CA CYM CYNH CBL XCP/L CBF1 CBF2 CBF3  
1.952 147.470 7.55280 1.85800 -2.92240 .45950 .34560 .04820 .56330 -.27590 -.22740 -.22520  
1.952 145.440 8.22850 2.11530 -2.89390 .51140 .29370 .05110 .56240 -.26190 -.22440 -.21610  
1.952 143.220 8.20270 2.54500 -2.86980 .51650 .17620 .05970 .56090 -.29890 -.23760 -.22670  
1.952 141.130 9.83080 2.89260 -2.80860 .53140 .19150 .07010 .55940 -.30090 -.22760 -.21440  
1.952 138.960 10.56800 3.03350 -2.69610 .56460 .13510 .07050 .55000 -.29630 -.22080 -.20920  
1.952 136.760 11.40450 3.21130 -2.58110 .59390 .10470 .07600 .55040 -.29370 -.21350 -.20370  
1.952 134.630 12.05000 3.52550 -2.43140 .59510 .07030 .07700 .55950 -.20740 -.19660 -.18660  
1.952 132.490 12.72990 3.72450 -2.30190 .61480 .01290 .08580 .55950 -.30650 -.19360 -.18350  
1.952 130.320 13.43790 3.95770 -2.16960 .62360 -.03370 .09090 .55930 -.31280 -.17110 -.16320  
1.952 128.330 13.77740 4.35760 -2.04190 .60770 .01390 .07840 .55760 -.30110 -.07320 -.14410  
1.952 126.260 14.58940 4.58050 -1.93410 .65670 -.09160 .08450 .55780 -.32350 -.12130 -.11490  
1.952 125.880 11.03290 3.37400 -2.52240 .52150 .10050 .07750 .55840 -.28610 -.18790 -.20280  
GRADIENT 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000

RUN NO. 104/ 0 RN/L = 7.07 GRADIENT INTERVAL = -5.00/ 5.00

RUN NO 30/ 1 RN/L = 5.16 GRADIENT INTERVAL = -5.00/ 5.00

REFERENCE DATA  
MACH ALPHA CNH CLMH CA CYM CYNH CBL XCP/L CBF1 CBF2 CBF3  
2.740 149.020 6.34230 1.63890 -2.92240 .17400 .30890 .03550 .56230 .00000 .00000 .00000  
2.740 147.020 6.92610 1.82820 -2.89420 .16410 -.06910 .06480 .56180 .00000 .00000 .00000  
2.740 144.940 7.54180 1.98300 -2.87650 .18060 -.12200 .06750 .56190 .00000 .00000 .00000  
2.740 142.850 8.25390 2.19760 -2.61880 .17640 -.10430 .05970 .56160 .00000 .00000 .00000  
2.740 140.760 9.91620 2.73150 -2.57420 .20040 -.12320 .07560 .56180 .00000 .00000 .00000  
2.740 138.670 9.61820 2.59470 -2.51800 .17050 -.12250 .06440 .56140 .00000 .00000 .00000  
2.740 136.550 10.35130 2.72990 -2.44500 .22940 -.14270 .13490 .56190 .00000 .00000 .00000  
2.740 134.490 11.03210 2.93880 -2.38490 .25320 -.16510 .07150 .56160 .00000 .00000 .00000  
2.740 132.400 11.72880 3.27920 -2.31080 .28350 -.19220 .08600 .56060 .00000 .00000 .00000  
2.740 130.330 12.36450 3.67190 -2.22340 .28770 -.21570 .08100 .55910 .00000 .00000 .00000  
2.740 128.360 12.97550 4.12470 -2.12520 .32520 -.23060 .08890 .55740 .00000 .00000 .00000  
2.740 126.370 9.65740 2.58130 -2.52150 .22370 -.15350 .08090 .56160 .00000 .00000 .00000  
GRADIENT 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(RIH058) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

BETA = .000 PHI = 180.000  
 NOZZLE = .000

## PARAMETRIC DATA

RUN NO. 77/ 0 RN/L = 5.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CLM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.396	169.080	70100	-83760	-1.60510	.09520	.23760	.02570	.68080	.06630	.11650	.10200
.396	167.160	96320	-92320	-1.69360	.21890	.28570	.04800	.66160	.05310	.11310	.09720
.396	165.110	135360	-98090	-1.77480	.25410	.33350	.05290	.64250	.04500	.10240	.08760
.396	163.100	170430	-86680	-1.82860	.32220	.32370	.05970	.62490	.05660	.10060	.09080
.396	161.080	204530	-78850	-1.87510	.41830	.51070	.09000	.61480	.04210	.08180	.07090
.396	159.050	248550	-64750	-1.96820	.54120	1.23940	.05170	.60460	.05910	.07490	.04930
.396	157.010	293600	-42430	-2.03640	.85420	2.07900	.04370	.59560	.02090	.05320	.03900
.396	155.010	324530	-21780	-2.08920	1.13770	3.36380	.06630	.61650	.03000	.03000	.02020
.396	152.940	374940	.28860	-2.10110	1.55420	5.16750	.07330	.57710	.00870	.00560	.04220
.396	150.930	430080	.55910	-2.08760	1.99480	6.21310	.04390	.57280	.03160	.02510	.035460
.396	149.020	467980	.55010	-2.04760	2.41760	5.89970	.06050	.57380	.011270	.04450	.03360
.396	159.040	244790	-62540	-1.97750	.58470	1.17570	.05970	.60420	.05090	.07350	.05130
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 78/ 0 RN/L = 4.88 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CLM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.599	169.050	76920	-78240	-1.67400	.11190	.13260	.05170	.66630	.08340	.11080	.11080
.599	167.110	102780	-94500	-1.75740	.18680	.26870	.04270	.65840	.06440	.10280	.10280
.599	165.060	139710	-1.06670	-1.84550	.27110	.33330	.06460	.64570	.06870	.10250	.10600
.599	163.040	176560	-1.11800	-1.91170	.41610	.42220	.07230	.63500	.05900	.09280	.09730
.599	161.020	219230	-1.12320	-1.97760	.61570	.64860	.07390	.62520	.06270	.08590	.09120
.599	158.960	255780	-1.03450	-2.06700	1.01550	.99330	.05470	.61640	.04760	.06270	.06810
.599	156.910	297250	-.67070	-2.11750	1.11000	2.19910	.06060	.60180	.05840	.04770	.04060
.599	154.900	338720	-.48260	-2.16630	1.26390	3.34970	.05670	.59500	.03790	.02190	.00580
.599	152.820	381270	-.07300	-2.14360	2.01860	5.06170	.08520	.58490	.00760	.01100	.03250
.599	150.790	420800	.47480	-2.14790	2.48780	7.07480	.08160	.57500	-.08450	.06270	.09490
.599	148.850	511720	.37880	-2.16060	2.97770	6.57000	.08520	.57740	.13780	.10210	.07890
.599	158.940	262800	-.95780	-2.06450	1.01360	.92890	.05000	.61310	.04570	.04210	.03500
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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(R14058) ( 10 JUL 75 )

## REFERENCE DATA

SREF    "     
 LREF    "     
 BREF    "     
 SCALE    "   

5.7210 IN. XS  
.0000 IN. YS  
.0000 IN. ZS

BETA = .000 PHI = 180.000  
NOZZLE = .000

## PARAMETRIC DATA

[illegible][illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H058) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000 PHI = 180.000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 101/ 0 RN/L = 7.05 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.953	168 830	1.09290	-.90860	-2.66800	08600	.09290	.01130	.65120	-09680	-.09830	-.10090
1.953	166 830	1.51140	-1.02270	-2.69790	08090	.14260	.01800	.63660	-11260	-.11030	-.11640
1.953	164.660	2.10080	-1.10110	-2.77070	-15640	-34200	.02800	.62610	-12590	-.12470	-.13030
1.953	162 530	2.73920	-1.04350	-2.81980	-26720	-24960	.02220	.61490	-14440	-.14210	-14850
1.953	160 400	3.39490	-.97430	-2.88580	-12550	.32920	.04620	.60680	-15350	-.15170	-16440
1.953	158 220	4.09880	-.85360	-2.93870	.09750	.80090	.05280	.60040	-16330	-.16110	-17530
1.953	156 090	4.69540	-.55530	-2.95490	.37840	.40090	.05990	.59300	-16480	-16330	-16970
1.953	153 950	5.56250	.04660	-3.00180	.39070	1.02610	.06810	.58270	-19730	-19170	-19810
1.953	151 770	6.29320	.61920	-2.98910	.41640	.73420	.07160	.57550	-22980	-21490	-21970
1.953	149 640	7.07900	1.24500	-2.98430	.46680	.38400	.07390	.57130	-25270	-21860	-21750
1.953	147 650	7.76000	1.67130	-2.97640	.51420	.38570	.06150	.56580	-26710	-.22670	-22710
1.953	146 830	8.00140	1.55370	-2.86840	.24580	.49730	.04670	.59420	-16170	-15940	-16940
GRADIENT		00000	.000 0	00000	00000	00000	.00000	00000	00000	00000	.00000

RUN NO. 127 0 RN/L = 5.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	168 970	1.00050	-.59660	-2.64420	.09700	.15660	.00020	.63200	-09670	-08730	-08640
2.740	167 040	1.37930	-.57050	-2.68100	.07990	.11930	.01010	.61710	-09040	-09420	-09030
2.740	164 960	1.86120	-.44420	-2.72790	.00980	.05950	.01920	.60280	-09480	-09930	-09290
2.740	162 920	2.34470	-.20500	-2.77850	-.01240	.11700	.03670	.59050	-10110	-10310	-09780
2.740	160 850	2.84300	-.04180	-2.81600	.13050	.23970	.03780	.58460	-10570	-10980	-10040
2.740	158 760	3.40350	.23430	-2.85340	.18680	.28020	.02890	.57780	-10850	-11730	-09980
2.740	156 700	3.92630	.42870	-2.87900	.19960	.00430	.04110	.57450	-10760	-11810	-07490
2.740	154 640	4.55490	.69830	-2.90970	.24520	.12740	.03650	.57050	-10880	-11490	-07650
2.740	152 530	5.16150	1.04050	-2.93090	.23440	.01710	.05690	.56690	-11250	-.10460	-08050
2.740	150 470	5.82130	1.39750	-2.92230	.23690	.06730	.04450	.56380	-11720	-07830	-08910
2.740	148 490	6.48160	1.73300	-2.89600	.24870	.09940	.05590	.56160	-12430	-05110	-08700
2.740	146 760	7.17550	1.75400	-2.84560	.17960	.24710	.04400	.57920	-110600	-11580	-09890
GRADIENT		00000	00000	00000	.00000	.00000	.00000	.00000	00000	00000	.00000



MSFC TW1604 (SABF) SRB WITH ALL (-T) TUBERANCES

(R14058) (10 JUL 55)

## REFERENCE DATA

EF	5030	50. IN.	XMAP	5.7210	IN. XS
LREF	8000	IN.	YMAP	.0000	IN. YS
BREF	8000	IN.	ZMAP	.0000	IN. ZS
SCALE	.0055				

### PARAMETRIC DATA

BETA	-	000	PHI	-	180 000
NOZZLE	-	.000			

RUN NO. 13/ 0 RN/L = 7.13 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 14/ 0 RN/L = 5.74 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF  
MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

DATE 10 JUL 75

(R1H059) ( 10 JUL 75 )

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = .0000 IN. YS  
BREF = 8000 IN ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = 000 PHI = 180.000  
NOZZLE = 000

RUN NO		60/ 0	59/ 0	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
MACH	ALPHA	CNM	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
398	189 520	-58140	.95260	-1.49180	.06600	-.18020	-.05270	71700	05580	08130	07760
398	187 610	-40640	1.06560	-1.37230	.08200	-.21690	-0.1640	79720	07120	10140	39410
398	185 570	-19930	.72870	-1.31900	.08540	-1.5800	-0.5430	88160	07670	09860	07430
398	183 580	-13710	.60630	-1.24060	-.00070	-.15290	-0.2620	94400	08450	11880	08220
398	181 590	00540	.59450	-1.27450	.05080	-1.2240	-0.2130	-8 30450	08980	11920	08740
398	179 550	10490	.30910	-1.25190	.04440	-.21630	-.00280	34320	09650	10610	39890
398	177 540	.18360	.05480	-1.27660	.07820	-1.16400	-0.1700	60730	09050	10150	10280
398	175 530	.28570	-.24560	-1.35100	.07850	-.10020	-0.1090	65350	08370	09220	10070
398	173 490	.46300	-.46910	-1.42880	.11670	-.11370	.04500	65600	08160	09010	39860
398	171 470	.63520	-.60440	-1.52210	.09830	.00540	-0.1000	65100	07780	08150	38150
398	169 580	.81090	-.69670	-1.61410	.13250	.07590	.02650	64350	05730	06700	37180
398	175 550	14250	.23350	-1.26890	.04400	-.15550	-0.2510	44780	06850	09450	79100
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	00000	00000	00000	30000

RUN NO		59/ 0	58/ 0	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
MACH	ALPHA	CNM	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
597	185 540	-50590	.85390	-1.55810	.05070	-.24310	-0.0530	63630	05140	05670	37010
597	183 620	-49450	.86430	-1.48240	.11410	-2.2992	-0.2780	76080	05960	06670	37480
597	181 590	-29790	.75860	-1.37780	.08760	-1.5750	-0.2370	79110	08010	08730	37650
597	179 570	-17230	.59470	-1.31260	.06300	-1.1740	-0.3340	86440	08300	.09190	37580
597	181 580	-.03460	.48300	-1.26560	.06370	-1.0140	-0.1760	99520	09170	09530	38280
597	175 560	.04300	.41140	-1.31570	.00290	-.19430	-0.30 0	-04950	08930	08480	38730
597	173 540	.33300	.02310	-1.32320	.04390	-0.9330	-0.0730	56920	09570	09080	39660
597	171 520	.33000	-.23970	-1.40490	.00590	.02190	-0.1480	66730	08420	08240	38870
597	173 490	.36180	-.40360	-1.48720	.00670	.08280	-0.2020	67440	07270	07900	38350
597	171 460	.54090	-.61700	-1.58290	.00670	.20440	-0.4780	67660	06540	07700	37430
597	169 550	.78240	-.67080	-1.70220	.10010	.11330	-0.2050	65330	05650	05560	36640
597	175 570	.02450	.43910	-1.30650	.00360	-.24140	-0.1770	-71670	.09050	08690	38960
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	00000	00000	00000	30000

MSFC INT604 (SABF) SR9 WITH ALL PROTEGERANCES

(R14059) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	50 IN.	XGRP =	5.7210	IN. YS
LEF =	.8000	IN	YGRP =	.0000	IN. YS
ZREF =	.8000	IN.	ZGRP =	.0000	IN. ZS
SCALE =	.0055				

BETA	=	.000	PHI	=	180.000
NOZZLE	=	.000			

### PARAMETRIC DATA

RUN NO. 58/ 0 RM/L = 6.31 GRADIENT INTERVAL = -5 00/ 5.00

[illegible]

RUN NO. 57/ 0 RM/L = 6.71 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

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MSFC TWT604 (SABF) SRB WITH ALL PROTOBERANCES

(R1H059) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = 8000 IN YMRP = 0000 IN. YS  
BREF = 8000 IN ZMRP = 0000 IN. ZS  
SCALE = 0.555

PARAMETRIC DATA

BETA = 000 PHI = 180 000  
NOZZLE = 000

RUN NO. 109/ 0 RN/L = 7.04 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMP	CLMM	CA	CYM	CYMP	CBL	XCP/L	CBP1	CBP2	CBP3
1 953	189 730	- 83450	95130	-2 58550	- 07150	- 17210	- 00950	67620	- 09460	- 09730	- 09160
1 953	187 750	- 57110	80750	-2 52490	- 09390	- 09970	- 00360	69870	- 08500	- 08550	- 07820
1 953	185 580	- 35160	70870	-2 49700	- 08220	- 05870	- 00060	74330	- 06460	- 06360	- 05900
1 953	183 640	- 15570	49250	-2 45390	- 02860	03130	00910	78940	- 05730	- 05390	- 04940
1 953	181 600	- 04310	23110	-2 41210	- 00870	03250	00920	1 02370	- 05210	- 05430	- 05250
1 953	179 520	03610	- 12760	-2 41010	- 00910	01760	01890	70420	- 04980	- 05060	- 05580
1 953	177 450	22680	- 35440	-2 44910	- 01770	04050	01830	71380	- 05180	- 05180	- 05990
1 953	175 420	34570	- 68780	-2 47760	- 02330	00400	01950	74110	- 05810	- 05510	- 06330
1 953	173 340	55850	- 79630	-2 56600	- 02950	- 11110	02340	69970	- 08930	- 09730	- 11190
1 953	171 270	80240	- 98020	-2 65620	- 05090	- 05030	03010	67280	- 10420	- 11830	- 12990
1 953	169 310	11140	- 95790	-2 68610	- 05330	- 06900	03120	65410	- 11870	- 12990	- 12400
1 953	167 500	13120	- 16320	-2 69510	- 01400	01000	03170	73480	- 05380	- 06450	- 07060
1 953	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO. 6 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMP	CLMM	CA	CYM	CYMP	CBL	XCP/L	CBP1	CBP2	CBP3
2 740	189 620	- 81480	53130	-2 54880	- 02200	- 08180	- 02600	63660	- 08650	- 03130	- 08980
2 740	187 670	- 55810	59620	-2 51560	- 04090	- 15460	00030	67050	- 07680	- 08020	- 09220
2 740	185 630	- 31360	53340	-2 45350	- 03250	- 12110	01960	72210	- 06370	- 06680	- 05690
2 740	183 620	- 17240	37400	-2 42050	- 00150	- 01100	- 01460	76230	- 05400	- 05180	- 05370
2 740	181 580	- 04300	21530	-2 40150	- 01380	- 01500	- 1250	75220	- 04890	- 05220	- 04720
2 740	179 540	05880	- 05150	-2 41270	- 02800	- 03970	- 11690	64440	- 04920	- 05080	- 03110
2 740	177 520	13920	- 23010	-2 42410	- 01860	- 01680	- 07480	71820	- 05250	- 05190	- 04540
2 740	175 480	88400	- 48800	-2 47210	- 01800	- 00430	- 01300	72810	- 05820	- 06100	- 05740
2 740	173 420	45450	- 57730	-2 50840	- 01480	- 08750	02670	68700	- 08900	- 07210	- 07230
2 740	171 400	68060	- 58160	-2 58320	- 00870	- 15670	00110	65310	- 07890	- 06270	- 08150
2 740	169 480	98390	- 60040	-2 63420	- 11600	- 08700	01680	63320	- 08630	- 08660	- 08360
2 740	167 500	106900	- 05030	-2 60150	- 01990	- 01350	- 05820	64280	- 04950	- 05120	- 04850
2 740	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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TABULATED SOURCE DATA: MSFC INT 504, SA 84

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MSFC INT 604 (SABF) SRB WITH ALL PROJECTIONS

(R1H053) (10 00 75)

REFERENCE DATA

REF = 5030 SQ. IN. XMRP = 5 7210 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = 000 PHI = 180 000  
NOZZLE = 000

PARAMETRIC DATA

RUN NO. 5/ 0 RN/L = 5.43 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	189 540	-60860	.16930	-2.33810	-0.3690	-0.10550	-0.02480	.60810	-.03570	-.03630	-.03490
4.450	187 600	-43500	.20380	-2.32610	-0.3980	-0.0260	-.06260	.62160	-.03290	-.03410	-.03190
4.450	185 580	-22890	.27780	-2.31020	.02270	-0.01200	-.05530	.68240	-.03060	-.03190	-.03060
4.450	183 600	-17390	.17820	-2.28230	-0.2300	-0.10420	-.00690	.66690	-.02840	-.03060	-.02860
4.450	181 590	-11550	.11770	-2.26030	-0.2210	-0.10540	-.02550	.66650	-.02740	-.02860	-.02700
4.450	179 550	-00140	-0.10690	-2.27090	-0.3640	-0.03330	-.01430	-5.26600	-.02760	-.02800	-.02640
4.450	177 540	.14290	-0.2570	-2.28190	-0.04710	-0.09590	-.02360	.71220	-.02780	-.02820	-.02680
4.450	175 530	.50	-0.28790	-2.33140	-0.01890	-0.02070	-.04170	.71790	-.03000	-.03040	-.02560
4.450	173 480	32570	-0.2530	-2.37130	.05510	-0.07680	-.03200	.65730	-.03080	-.03190	.00450
4.450	171 480	48400	-0.30750	-2.41690	-0.11850	-0.09650	-.02860	.63520	-.03350	-.03410	.01820
4.450	169 590	69620	-0.19230	-2.47570	-0.00560	-0.02130	-.03410	.60590	-.03590	-.03610	.03120
4.450	179 550	05620	-0.02600	-2.26570	-0.03710	-0.02110	-.01290	.62120	-.02700	-.02840	-.02460
GRADIENT		00000	.00000	00000	.00000	.00000	.00000	.00000	00000	00000	.00000



DATE 10 JUL 75

TABLED SOURCE DATA, MSFC TWI 604, SA-8F

3. 14. 85

045FC TW1624 (SABF) SRB WITH ALL PROTUBERANCES

RI 4060) ( 10 JUL 73 )

## REFERENCE DATA

SREF	=	.5030	SQ	IN.	•	X040P	•	5	7210	IN.	X5
LREF	=					1400P	=		0000	IN.	V5
BREF	=					8000	IN	•	.0000	IN.	Z5
SCALE	=					0055					

BETA	-	000	PHI	-	225 000
NOZZLE	-	.000			

### PARAMETRIC DATA

RUN NO. 428/ 0      RM/L = 6 37      GRADIENT INTERVAL = -5.00, 5.00

[illegible]

RUN NO. 427/ 0 RM/L = 6 89 GRADIENT INTERVAL = -5 00/ 5 00

MOON	ALPHA	CM	CLM	CA	CYM	CYM	CYM	CBL	XCP/L	CBP1	CBP2	CBP3
1	201	18 620	16 08630	97030	- 29340	.5017C	.5017C	.06750	.51240	.00000	.00000	.00000
1	201	72 480	18 65880	94560	- 29630	.55800	.55800	.06380	.51440	.00000	.00000	.00000
1	201	74 480	15 77780	94560	- 31750	.58730	.58730	.06460	.51690	.00000	.00000	.00000
1	201	76 460	14 90540	97050	- 33740	.72070	.72070	.07080	.51910	.00000	.00000	.00000
1	201	78 430	19 17250	94590	- 33280	.74900	.74900	.05820	.52150	.00000	.00000	.00000
1	201	80 430	14 19070	86860	- 34030	.69670	.69670	.05860	.52340	.00000	.00000	.00000
1	201	82 430	13 67720	82100	- 31930	.67680	.67680	.05670	.52610	.00000	.00000	.00000
1	201	84 380	19 67070	75110	- 31220	.60500	.60500	.05180	.52890	.00000	.00000	.00000
1	201	86 360	12 55040	67810	- 31650	.56610	.56610	.05570	.53140	.00000	.00000	.00000
1	201	88 340	19 68210	59560	- 30010	.55210	.55210	.04050	.53300	.00000	.00000	.00000
1	201	90 240	12 00370	50660	- 29350	.52840	.52840	.03730	.53530	.00000	.00000	.00000
1	201	92 240	14 14420	66710	- 33840	.70190	.70190	.05530	.52350	.00000	.00000	.00000
1	201	94 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	96 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	98 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	100 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	102 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	104 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	106 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	108 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	110 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	112 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	114 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	116 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	118 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	120 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	122 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	124 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	126 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1	201	128 240	19 26550	66710	04000	.00000	.00000	.00000	.00000	.		





DATE 10 JUL 75

TABLE A-10 SOURCE DATA MSFC TWT 604. 5A-8F

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H081) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. X5
LREF	=	.8000	IN.	YMRP	=	.0000	IN. Y5
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. Z5
SCALE	=	.0055					

BETA	.000	PHI	225.000
NOZZLE	.000		

### PARAMETRIC DATA

COEFF. NO.	20.0/ 0	6.43	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

FIN NO. 348/ 0 RN/L = 6.87 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 804, SA-8F

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MSFC TWT604 (SABF1 SRB WITH ALL PROTUBERANCES)

(RIH082) ( 10 JUL 75 )

## REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

## PARAMETRIC DATA

BETA = .000 PHI = 225.000  
NOZZLE = .000

RUN NO. 76/ 0 RN/L = 5.21 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.394	169.080	.61500	-1.08480	-1.65560	.19170	.08900	.07480	.72720	.38510	.10350	.10110
.394	187.160	.73350	-1.40380	-1.73480	.15840	.18720	.04030	.73940	.08620	.07970	.08220
.394	165.120	1.01080	-1.83280	-1.81330	.16140	.25140	.02380	.71820	.08430	.07170	.07300
.394	163.110	1.33420	-1.78180	-1.86790	.25190	.24410	.00720	.68230	.04750	.06400	.04420
.394	161.120	1.53080	-1.63430	-1.89160	.32110	.05340	.02940	.67050	.03500	.05820	.01790
.394	159.080	1.82750	-1.52840	-1.98590	.31890	-.49890	.02380	.65160	.01800	.04760	-.00900
.394	157.040	2.14880	-1.29520	-2.04690	.21800	-1.49800	.00500	.63250	-.02370	.02320	-.03360
.394	155.040	2.48300	-1.19670	-2.11890	-.10940	-2.67030	.02090	.62270	-.09430	-.00630	-.04350
.394	152.980	2.83450	-1.08120	-2.13010	-.17170	-3.79490	.01070	.61450	-.22440	-.02630	-.05100
.394	150.970	3.19790	-1.24270	-2.08680	-.10770	-4.15520	.01710	.61510	-.23060	-.05740	-.09430
.394	149.060	3.60720	-1.37820	-2.07350	-.08460	-4.26180	.01630	.61450	-.25680	-.07680	-.17420
.394	159.060	1.83760	-1.52980	-1.97510	.33780	-.53830	.02630	.65150	.00830	.04410	.50760
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 75/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCF/L	CBP1	CBP2	CBP3
.597	169.060	.55660	-1.01520	-1.73020	.21900	.12440	.03870	.73210	.37160	.08530	.09690
.597	167.130	.77660	-1.37480	-1.91350	.13000	.27170	-.00160	.72780	.06540	.08230	.09120
.597	165.090	1.06220	-1.60880	-1.88100	.16040	.21340	.00240	.70690	.07090	.04410	.07800
.597	163.090	1.25300	-1.65980	-1.95280	.22510	.22600	.02200	.68760	.05320	.03980	.05030
.597	161.060	1.61280	-1.67240	-2.03230	.26920	.02750	-.02110	.66800	.04160	.03350	.02190
.597	159.020	1.85600	-1.58450	-2.08690	.20600	-.56630	-.32130	.65260	.02020	.03900	-.01190
.597	156.990	2.18860	-1.49790	-2.14280	.00640	-1.37850	.01550	.63930	-.00390	.01760	-.02270
.597	154.960	2.52190	-1.37160	-2.19280	-.21500	-2.32800	.31710	.62770	-.07540	-.00930	-.02270
.597	152.890	2.89830	-1.07200	-2.19050	-.20980	-3.76790	-.01970	.61350	-.21460	-.03520	-.07980
.597	150.870	3.22260	-1.32250	-2.14290	-.02620	-3.77890	-.00440	.61190	-.23340	-.05950	-.28540
.597	148.950	3.56410	-1.65170	-2.14550	-.01590	-3.01840	.01690	.62120	-.35550	-.07830	-.39990
.597	159.010	1.89110	-1.54840	-2.08020	.20540	-.56570	-.00470	.65020	.01750	.03900	-.01010
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

(R, H062) (10 JUL 75)

## PARAMETRIC DATA

DATA	PHI	225 000
NOZZLE	000	000

## REFERENCE DATA

SREF	=	5030	SQ	IN	XMRP	=	5.7210	IN	X5
LREF	=	8000	IN		YMRP	=	0000	IN	Y5
BREF	=	8000	IN.		ZMRP	=	.0000	IN	Z5
SCALE	=						.0055		

8111	74/ 0	6 32	GRADIENT INTERVAL =	-5 00/	5 00
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[illegible]

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RUN NO.      73/ 0      RN/L =  6.72      GRADIENT INTERVAL =  -5.00/  5.00

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MACH	ALPHA	CNH	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.199	168.840	1.09070	-1.21120	-2.68900	.68970	.76970	.00170	.67400	-1.1500	-.10490	-.13030
1.199	166.870	1.33730	-1.48890	-2.78620	.73390	.65700	-.00460	.67420	-1.14010	-.12230	-.15700
1.199	164.790	1.61150	-1.84660	-2.84610	.71010	.45520	.00070	.67690	-1.16300	-.13380	-.16930
1.199	162.720	1.95440	-2.19020	-2.86700	.58030	.03370	.01610	.67470	-1.18140	-.14290	-.17890
1.199	160.590	2.42030	-2.47030	-2.88920	.16040	-.76940	.00750	.56660	-1.18950	-.15990	-.19380
1.199	158.460	3.03090	-2.51630	-2.90450	.32720	-1.17870	-.00260	.65110	-1.20980	-.19030	-.21490
1.199	156.310	3.74030	-2.58760	-2.92560	-.6490	-.30000	.01330	.63980	-.22690	-.22010	-.23750
1.199	154.150	4.50530	-2.51380	-2.93470	.39620	.18370	.00400	.62090	-.26480	-.25710	-.28000
1.199	151.940	5.46160	-2.12190	-2.94400	-.39350	-.27370	.00860	.61510	-.28680	-.28770	-.31520
1.199	149.790	6.40720	-1.69460	-2.93720	-.29730	.03090	-.00710	.60490	-.31240	-.31830	-.36740
1.199	147.740	7.29690	-1.49890	-2.90550	.17660	.42960	.02380	.60010	-.33560	-.37730	-.42020
1.199	158.440	3.07020	-2.53630	-2.90250	-.37500	-1.10940	.00260	.65080	-2.1010	-.19960	-.22020
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.000000	.00000	.00000

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

DATE 10 JUL 75

(RIH053) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB W.L.H ALL PROTUBERANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS BETA = .000 PHI = 270.000  
LREF = 8000 IN. YMRP = 0000 IN. YS NOZZLE =  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

RUN NO. 205/ 0 RN/L = 7.08 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	-9 630	-1.29970	-2.13230	.84930	.08770	-28780	-.01870	.44950	-.07240	-.08780	-.08840
3.480	-7 640	-.91000	-1.66850	.82740	.08610	-.32080	-.01660	.43380	-.06580	-.08510	-.08700
3.480	-5 590	-61750	-1.31020	.81630	.086290	-.27230	-.01400	.41030	-.05990	-.08350	-.08530
3.480	-3 530	-35800	-.76000	.82100	.05160	-.26490	-.00200	.41020	-.05730	-.08190	-.07440
3.480	-1 490	-19720	-33030	.79840	.05650	-.26260	-.01110	.44680	-.05790	-.08070	-.08400
3.480	550	.09390	.16760	.81160	.05400	-.25810	.00180	.43760	-.05670	-.08220	-.08210
3.480	2 620	.27220	.59060	.81560	.04380	-.22890	.00520	.40640	-.05510	-.08210	-.08000
3.480	4 640	.46660	1.08740	.91840	.04050	-.21460	.01130	.39330	-.05570	-.08400	-.08080
3.480	6 720	.75920	1.60480	.82040	.01430	-.20840	.00470	.41090	-.06010	-.08550	-.08210
3.480	8 780	1.11390	2.01740	.84050	.02180	-.19600	.02370	.43560	-.07240	-.08640	-.08330
3.480	10 750	1.54910	2.35830	.86170	.02300	-.20720	.01990	.45920	-.07790	-.08720	-.08470
3.480	.550	.06130	.16120	.79820	.05310	-.28730	-.01670	.36900	-.05730	-.08300	-.08250
GRADIENT		10360	.22369	.00059	-.00171	.00657	.00224	-.00363	.00029	-.00027	.00055

RUN NO. 204/ 0 RN/L = 5.66 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	-9 480	-1.27860	-1.47460	.68190	.08060	-17810	.00190	.48930	-.04320	-.04950	-.04440
4.450	-7 550	-.93020	-1.32610	.65520	.06730	-.26010	-.01220	.46710	-.04300	-.04990	-.04580
4.450	-5 530	-64160	-1.05320	.63350	.06900	-.20760	-.00760	.44950	-.04080	-.04910	-.04680
4.450	-3 500	-40830	-.71840	.63130	.05330	-.22240	.00260	.43980	-.03940	-.04870	-.04700
4.450	-1 500	-20610	-.30200	.63460	.04990	-.21640	.02890	.46380	-.03750	-.04740	-.04720
4.450	540	.05510	.09190	.62950	.04820	-.26590	-.00170	.44740	-.03650	-.04740	-.04700
4.450	2 570	.25930	.50750	.63330	.04630	-.23510	.01950	.42310	-.03670	-.04780	-.04620
4.450	4 590	.43140	.96750	.62910	.02970	-.21110	-.07100	.40040	-.03630	-.04830	-.04560
4.450	6 640	.75400	1.26780	.63940	.02070	-.15100	.03330	.44620	-.03930	-.04950	-.04560
4.450	8 670	1.09970	1.55710	.65980	.01600	-.22970	.00550	.46790	-.04260	-.05050	-.04580
4.450	10 590	1.43340	1.80240	.70450	.01220	-.09680	.00480	.48080	-.04420	-.05110	-.04580
4.450	.530	.11930	-.01710	.62420	.06210	-.00780	-.23670	.57170	-.04020	-.04920	-.04720
GRADIENT		10587	.20648	-.00028	-.03325	.00019	-.00774	-.00591	.00035	.00002	-.00019

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC T4.7 601, SA-8F

261 36 172

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(R1H064) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ IN	XPRP =	5.7210 IN. X5
LREF =	6000 IN.	YPRP =	.0000 IN. Y5
BREF =	.8000 IN.	ZPRP =	.0000 IN. Z5
SCALE =	.0055		

## PARAMETRIC DATA

BETA	=	.000	PHI	=	270.000
NOZZLE	=	.000			

RUN NO.	192/ 0	RN/L = 5.57	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

(R1H055) ( 10 JUL 75 )

### PARAMETRIC DATA

BETA	=	.000	PHI	=	270.000
NOZZLE	=	.000			

## REFERENCE DATA

SREF	•	.5030	SQ. IN.	XMRP	•	5.7210	IN. XS
LREF	•	.9000	IN.	YMRP	•	.0000	IN. YS
BREF	•	.8000	IN.	ZMRP	•	.0000	IN. ZS
SCALE	•	.0055					

RUN NO.	191/ 0	RN/L =	6.99	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO.	190/ 0	RN/L	5.55	GRADIENT INTERVAL	-5.00/ 5.00
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[illegible]



(RIH056) ( 10 JUL 75 )

MSFC TWT60N (SABF) SRB WITH ALL PROTUBERANCES

PARAMETRIC DATA

REFERENCE DATA

BETA = .000 PHI = .000  
NOZZLE = .000

SREF = .5030 50. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

RUN NO. 420/ 0 RN/L = 6.38 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
900	70 560	15 59260	16 74810	.35620	-.08560	-.85050	.08390	.49570	.00000	.00000	.00000
900	72 440	15 68380	16 03040	.43530	-.02380	-1.12640	.08130	.50000	.00000	.00000	.00000
900	74 430	15 77800	15 44440	.52690	.01040	-1.26440	.08600	.50350	.00000	.00000	.00000
900	76 410	15 83410	14 64210	.59870	-.04610	-1.02740	.10140	.50790	.00000	.00000	.00000
900	78 380	15 92650	13 75580	.59200	-.10150	-.81280	.10450	.51290	.00000	.00000	.00000
900	80 340	16 10410	12 83570	.62050	-.10770	-.73400	.10790	.51830	.00000	.00000	.00000
900	82 310	15 27230	11 72000	.69120	-.12660	-.67230	.08800	.52460	.00000	.00000	.00000
900	84 270	16 38390	10 62500	.71510	-.10490	-.68180	.10370	.53050	.00000	.00000	.00000
900	86 230	16 49860	9 52880	.74780	-.10530	-.70830	.11630	.53630	.00000	.00000	.00000
900	88 210	16 67140	8 35680	.82970	-.14680	-.69190	.12030	.54250	.00000	.00000	.00000
900	90 060	16 80140	7 47760	.82920	-.16220	-.63690	.11720	.54710	.00000	.00000	.00000
900	90 340	16 13480	12 5910	.61910	-.12170	-.76240	.08840	.51880	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 419/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 195	70 570	18 44350	14 91640	.73720	-.05730	-.68340	.12930	.51740	.00000	.00000	.00000
1 195	72 420	18 73370	4 36740	.76480	-.06790	-.59440	.11200	.52080	.00000	.00000	.00000
1 195	74 420	18 81360	13 89910	.76720	-.08890	-.53650	.13080	.52310	.00000	.00000	.00000
1 195	76 410	18 93700	13 59950	.75160	-.10210	-.56860	.12410	.52480	.00000	.00000	.00000
1 195	78 370	19 07840	13 23790	.82430	-.12950	-.50120	.12150	.52680	.00000	.00000	.00000
1 195	80 390	19 31470	13 18580	.82270	-.17640	-.38460	.12980	.52770	.00000	.00000	.00000
1 195	82 380	19 46190	12 89980	.79140	-.17560	-.36830	.13310	.52930	.00000	.00000	.00000
1 195	84 360	19 60240	12 55450	.73320	-.17930	-.29610	.12680	.53110	.00000	.00000	.00000
1 195	86 340	19 75980	11 98200	.69080	-.17600	-.29210	.13380	.53390	.00000	.00000	.00000
1 195	88 310	19 81680	11 36370	.53200	-.19710	-.30680	.13830	.53660	.00000	.00000	.00000
1 195	90 200	19 67730	11 04060	.54400	-.18450	-.38260	.12110	.53740	.00000	.00000	.00000
1 195	80 390	19 27120	13 23870	.79990	-.17300	-.48400	.11930	.52730	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

## REFERENCE DATA

SREF	•	.5030	SQ. IN.	XMRP	•	5	7210	IN. XS
LRP	•	.8000	IN.	YMRP	•	.	.0000	IN. YS
BREF	•	.8000	IN	ZMRP	•	.	.0000	IN. ZS
SCALE	•						.0055	

4.19/0	7.14	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RAIN NO. 417/ G RAIN/L = 5.27 GRADIENT INTERVAL = -5.00/ 5 00

ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP-1	CBP-2	CBP-3
70.340	18.12940	11.66810	1.16920	-1.1970	-1.4240	1.1650	53090	.00000	.00000	.00000
72.240	18.54420	11.85680	1.10330	-1.15470	-1.40900	1.2040	53120	.00000	.00000	.00000
74.260	18.84220	11.92130	1.03630	-1.15190	-1.44890	1.0620	53180	.00000	.00000	.00000
76.250	19.08310	11.75550	.97150	-1.15460	-1.42970	1.0470	53310	.00000	.00000	.00000
76.230	19.27500	11.61590	.90830	-1.16590	-1.41870	1.2050	53420	.00000	.00000	.00000
80.240	19.41310	11.47550	.84520	-1.16330	-1.42570	1.1480	53510	.00000	.00000	.00000
82.230	19.67280	11.30770	.76000	-1.16540	-1.40520	1.0200	53650	.00000	.00000	.00000
84.230	19.81210	1.01830	.68980	-1.16730	-1.36500	1.1480	53800	.00000	.00000	.00000
86.220	19.96680	0.84300	.61500	-1.18790	-1.35910	1.3010	53910	.00000	.00000	.00000
88.210	20.02100	0.55190	.52500	-1.19090	-1.31710	1.1840	54040	.00000	.00000	.00000
90.100	20.02120	0.21200	.45680	-1.19450	-1.29780	1.3320	54180	.00000	.00000	.00000
90.240	19.46520	11.41250	.85690	-1.16190	-1.42500	1.2660	53550	.00000	.00000	.00000
90.240	19.46520	11.41250	.85690	-1.16190	-1.42500	1.2660	53550	.00000	.00000	.00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 60N, SA-BF

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MSFC TWT60N (SABF) SRB WITH ALL PROTUBERANCES

(RIH066) ( 10 JUL 75 )

## REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0055

## PARAMETRIC DATA

BETA = .000 PHI = 270.000  
NOZZLE = .000

RUN NO. 416/ 0 RN/L = 7 19 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CEL	XC <sup>2</sup> /L	CBP1	CBP2	CBP3
3 480	70 380	17.70500	11.69050	1.16480	-.15500	-.43140	.08340	52950	.00000	.00000	.00000
3 480	72 260	18.09320	11.91340	1.10670	-.15340	-.46260	.11320	52970	.00000	.00000	.00000
3 480	74 280	18.41540	12.04270	1.04590	-.16710	-.49380	.10330	53000	.00000	.00000	.00000
3 480	76 280	18.68010	12.00680	.98400	-.15450	-.47410	.10480	53090	.00000	.00000	.00000
3 480	78 250	18.90640	11.85780	.92450	-.16500	-.46320	.11970	53220	.00000	.00000	.00000
3 480	80 270	19.13950	11.73270	.85880	-.16760	-.44530	.11310	53340	.00000	.00000	.00000
3 480	82 280	19.30060	11.57000	.78020	-.17070	-.42780	.12180	53450	.00000	.00000	.00000
3 480	84 250	19.44560	11.27500	.70540	-.18040	-.42400	.10450	53610	.00000	.00000	.00000
3 480	86 240	19.60730	11.15170	.63090	-.19140	-.38430	.13210	53700	.00000	.00000	.00000
3 480	88 250	19.71960	10.63160	.55300	-.18990	-.34170	.13300	53940	.00000	.00000	.00000
3 480	90 110	15.74380	10.17960	.46690	-.19840	-.30680	.12860	54130	.00000	.00000	.00000
3 480	80 270	13.13930	11.77290	.85570	-.16980	-.47510	.09450	53320	.00000	.00000	.00000
GRADIENT		00000	00000	00000	.00000	.00000	.00000	00000	.00000	.00000	.00000



DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SR8 WITH ALL PROTECTORANCES

(RIM087) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. XE  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

PARAMETRIC DATA

BETA = .000 PHI = 270.000  
NOZZLE = .000

RUN NO. 341/ 0 RN/L = 6.35 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.897	109.560	14.98370	-2.74810	-1.8180	.84410	-4.2830	.16230	.59830	.00000	.00000	.00000
.897	107.680	15.28520	-1.98870	-1.00180	.85170	-5.87700	.14880	.59400	.00000	.00000	.00000
.897	105.690	15.41770	-1.08320	.15950	.24700	-5.1810	.15490	.59910	.00000	.00000	.00000
.897	103.710	15.64250	-1.16520	.31960	.24090	-4.4250	.15530	.59420	.00000	.00000	.00000
.897	101.770	15.87500	1.15700	.47830	.25770	-3.1820	.14730	.57740	.00000	.00000	.00000
.897	99.820	16.13320	2.73970	.60590	.27230	-2.1540	.15090	.56950	.00000	.00000	.00000
.897	97.850	16.31550	4.41320	.71870	.23350	-4.2290	.14700	.56130	.00000	.00000	.00000
.897	95.890	16.35960	5.29580	.84040	.23630	-4.6330	.13180	.55700	.00000	.00000	.00000
.897	93.900	16.54250	6.19620	.94020	.25740	-3.0800	.14180	.55280	.00000	.00000	.00000
.897	91.920	16.64400	6.97000	.99770	.27620	-2.0140	.13840	.54920	.00000	.00000	.00000
.897	90.050	16.66050	7.85000	1.02350	.30260	-1.7480	.12650	.54490	.00000	.00000	.00000
.897	99.820	16.25160	2.95060	.57600	.28180	-2.1150	.15680	.56860	.00000	.00000	.00000
GRADIENT		0.000	0.0000	0.0000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 340/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.197	109.710	18.20210	5.85240	-1.54000	.21270	.37830	.15330	.55710	.00000	.00000	.00000
1.197	107.830	16.53260	6.59690	-38.160	.17720	.40890	.16110	.55430	.00000	.00000	.00000
1.197	105.820	18.82420	7.19310	-22330	.16210	.42890	.16930	.55220	.00000	.00000	.00000
1.197	103.840	19.04890	7.83930	-06200	.16650	.40240	.16540	.54980	.00000	.00000	.00000
1.197	101.870	19.25160	8.24470	.08670	.18080	.33210	.16130	.54840	.00000	.00000	.00000
1.197	99.860	19.30770	7.89740	.24710	.21580	.31720	.16230	.55000	.00000	.00000	.00000
1.197	97.810	19.46570	8.01920	.37820	.20140	.29850	.16360	.54980	.00000	.00000	.00000
1.197	95.850	19.64650	8.46180	.48850	.22230	.22310	.15620	.54820	.00000	.00000	.00000
1.197	93.870	19.85060	9.07400	.59870	.24630	.17840	.15690	.54610	.00000	.00000	.00000
1.197	91.870	19.89190	9.74710	.69580	.26600	.16250	.16510	.54340	.00000	.00000	.00000
1.197	90.020	19.96680	10.47220	.78880	.27470	.15220	.16680	.54060	.00000	.00000	.00000
1.197	99.850	5.20800	7.79620	.22850	.22080	.33860	.16280	.55330	.00000	.00000	.00000
GRADIENT		0.000	0.0000	0.0000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 79

TABULATED SOURCE DATA, MSFC TMT 604, SA-BF

PAGE 30008

MSFC THT604 (SABF) SIX WITH ALL PROTOGRANCES

( R1H067 ) : 10 μ ~ 5 )

## REFERENCE DATA

57210 IN	XS
5030 SQ IN.	X999
6000 IN	Y999
8000 IN.	Z999
3055	SCALE

## PARAMETRIC DATA

BETA	=	000	PH	=	270 000
NOZZLE	=	000			

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RUN NO      334/ 0      RM/L = 7 13      GRADIENT INTERVAL = -5.00/ 5.00

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MACH	ALPHA	CNH	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 .951	109 750	18 27370	7 82180	-56920	.21110	.26510	.14260	.54850	.00000	.00000	.00000
1 .951	107 860	18 71210	8 21970	-52310	.22060	.25900	.14600	.54750	.00000	.00000	.00000
1 .951	105 860	19 12940	8 69620	-28440	.23050	.24790	.14710	.54630	.00000	.00000	.00000
1 .951	103 870	19 46060	9 17000	-14770	.23430	.22800	.14870	.54510	.00000	.00000	.00000
1 .951	101 880	19 82940	9 51130	-00290	.23800	.23410	.14800	.54420	.00000	.00000	.00000
1 .951	99 890	20 03870	10 02190	12860	.23140	.21980	12660	.54260	.00000	.00000	.00000
1 .951	97 890	20 28990	10 58610	25890	.23750	.19880	15200	.54080	.00000	.00000	.00000
1 .951	95 930	20 30630	10 96460	37800	.24470	112960	14980	.53930	.00000	.00000	.00000
1 .951	93 920	20 45620	11 38000	49000	.26180	09540	15740	.53800	.00000	.00000	.00000
1 .951	91 930	20 63310	11 75170	58960	.27350	.06500	14010	.53630	.00000	.00000	.00000
1 .951	90 050	20 69540	12 08080	67680	.28580	.04310	15540	.53570	.00000	.00000	.00000
1 .951	99 900	19 84460	10 08780	00000	.24350	.23960	15090	.54200	.00000	.00000	.00000
CRACKLENT	62560	00000	00000	00000	.00000	.00000	00000	.00000	.00000	.00000	.00000

RUN NO.	333/0	RM/L	5.25	GRADIENT	INTERVAL	-5.00%	5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 604, SA-DE

PAGE 181

MSFC THT604 (SABF) SRB WITH ALL PROTEUBERANCES

(RIH0681) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000  
NOZZLE = .000  
PHI = .000  
270 000

PARAMETRIC DATA

RUN NO. 339/ 0 RN/L = 5 33 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
.401	129.560	5.30460	-6.36840	-1.82200	.87980	-1.44340	.00440	.68130	.00000	.00000	.00000
.401	127.560	5.88750	-5.80070	-1.75070	.68550	-.79820	.02180	.66370	.00000	.00000	.00000
.401	125.560	6.30310	-5.42240	-1.61350	.15300	-.51110	.03880	.65360	.00000	.00000	.00000
.401	123.560	7.00870	-5.26340	-1.53200	-.18470	-.89780	.04930	.64460	.00000	.00000	.00000
.401	121.560	7.45880	-4.90090	-1.40490	-.12630	-1.31420	.05040	.63700	.00000	.00000	.00000
.401	119.560	7.90290	-4.55680	-1.25380	.42030	-2.08660	.07550	.63040	.00000	.00000	.00000
.401	117.560	8.34820	-4.23720	-1.12800	.69010	-2.12790	.07170	.62480	.00000	.00000	.00000
.401	115.560	8.83910	-4.01700	-.96650	.73740	-1.88400	.07940	.62040	.00000	.00000	.00000
.401	113.560	9.22510	-3.49980	-.78880	.95610	-1.54810	.04460	.61430	.00000	.00000	.00000
.401	111.560	9.71650	-3.15650	-.63670	1.13620	-1.26390	.03920	.60990	.00000	.00000	.00000
.401	109.720	10.33860	-2.78230	-.45820	1.07700	-2.10060	.08570	.60570	.00000	.00000	.00000
.401	119.650	7.75590	-4.62150	-1.27300	.42590	-1.65810	.05850	.63000	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 338/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
.594	129.490	7.28030	-5.17300	-1.81530	.28950	-.54220	.10880	.64130	.00000	.00000	.00000
.594	127.530	8.16560	-4.48960	-1.73260	-.07420	-.35830	.10320	.62820	.00000	.00000	.00000
.594	125.570	8.86560	-4.05260	-1.60960	-.14070	-.05880	.12880	.62070	.00000	.00000	.00000
.594	123.560	9.52340	-3.84590	-1.47740	-.04960	-.19980	.12700	.61630	.00000	.00000	.00000
.594	121.580	10.01710	-3.27210	-1.33000	.29170	-.61490	.13300	.61000	.00000	.00000	.00000
.594	119.580	10.55940	-2.77980	-1.17490	.36580	-.83050	.12920	.60480	.00000	.00000	.00000
.594	117.530	11.12000	-2.54600	-.95870	.14310	-.86590	.12040	.60200	.00000	.00000	.00000
.594	115.550	11.60020	-2.27540	-.77600	.34420	-.28110	.13600	.59940	.00000	.00000	.00000
.594	113.550	11.95640	-2.13150	-.60120	.46900	-.08650	.14550	.59790	.00000	.00000	.00000
.594	111.550	12.14310	-1.83450	-.42000	.40980	-1.04610	.19480	.59570	.00000	.00000	.00000
.594	109.650	12.29480	-1.58070	-.23200	.67560	-.43240	.15420	.59390	.00000	.00000	.00000
.594	119.580	10.54140	-2.87740	-1.18240	.31930	-.99790	.11430	.60560	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

FACE 184

MSF: TWTEC4 (SABF) SRB WITH ALL PROTRUSANCES

( 1914768 ) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	SQ. IN.	XPRP =	5.210	IN. X5
LREF =	.8000	IN.	YPRP =	.000	IN. Y5
BREF =	.8000	IN.	ZPRP =	.000	IN. Z5
SCALE =	.0055				

BETA	=	.000	PHI	=	270.000
NOZZLE	=	000			

### PARAMETRIC DATA

RUN NO. 331/ 0 AN/L = 7.18 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

( R14089 ) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5030 SQ IN.	XMAP	=	5.7210 IN.	XS
LREF	=	.8000 IN.	YMAP	=	.0000 IN.	YS
BREF	=	.8000 IN.	ZMAP	=	.0000 IN.	ZS
SCALE	=	.0055				

### PARAMETRIC DATA

BETA = .000 PHI = 270.000  
NOZZLE = .000

RUN NO. 38/ 0 RN/L = 5.08 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	35/ 0	RN/L -	4.98	GRADIENT INTERVAL -	-5 00/	5 00
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MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
596	148 660	3 47660	-2 47680	-2 14630	.00240	- 24620	-.01890	63990	-.26800	- 07430	- 05290
596	146 700	3 90600	-2 81350	-2 12050	.15900	-.67030	.00320	64210	- 30500	- 07440	- 07440
596	144 650	4 30480	-3 20600	-2 08540	.10620	- 92410	.01060	64410	- 38690	- 12840	- 10060
596	142 640	4 61380	-3 54190	-2 02700	- .00540	-.95090	.02520	64600	- 45080	- 14130	- 10980
596	140 600	4 81260	-4 01080	-2 00560	.19390	-.95490	.01480	65140	- 53980	- 16660	- 12190
596	138 550	4 97120	-4 60260	-1 95970	.32030	- 1 10140	.03100	65690	-.66070	- 21290	- 15390
596	136 510	5 39460	-4 46340	-1 91300	36090	- 73600	05240	65090	- 82620	- 26630	- 19460
596	134 480	6 74090	-1 18380	-1 85000	.75110	1 43390	08070	59770	- 86920	- 33670	- 33580
596	132 390	7 99450	38130	-1 82500	.28950	- 42170	.04140	57950	- 1 03280	- 35860	- 28220
596	130 310	8 84590	40380	-1 74790	-.27870	- 1 00390	.03860	57960	- 1 21770	- 37040	- 26940
596	128 350	9 63000	-14290	-1 65950	-.39240	-.54250	.09640	58220	- 1 35720	- 40650	- 29360
596	126 540	5 05310	-4 65500	-1 98790	.31020	- 1 12700	03370	65850	- 66390	- 20610	- 15040
GRADIENT		0.0000	0.0000	.00000	.00000	.00000	00000	00000	00000	00000	00000

## REFERENCE DATA

SREF =	5030 IN	XMRP =	5 7210 IN, X5
LREF =	8000 IN.	YMRP =	.0000 IN Y5
BREF =	8000 IN	ZMRP =	.0000 IN, Z5
SCALE =	0095		

[illegible]

MACH	ALPHA	CM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1 200	147 480	7 18020	-1 88840	-2 97860	-0.1430	.21950	.06170	.60480	-38300	-36740	-4 0080
1 200	145 410	8 02390	-1 76690	-2 91070	.07730	-.14210	.07580	.60130	-.36860	-35760	-.38850
1 200	143 230	8 94820	-1 66220	-2 83970	-.02450	-.02810	.07420	.59850	-.35240	-34520	-.36630
1 200	141 010	10 38180	-4 9070	-2 79440	.12340	-.51910	.09140	.58720	-4 1370	-39630	-4 2300
1 200	138 840	11 29380	-.26030	-2 70920	.05630	-.41210	.07540	.58530	-4 1120	-39730	-4 1760
1 200	136 680	11 90150	-9 28880	-2 58500	-.17130	.74250	.08780	.58970	-38610	-36700	-36490
1 200	134 520	12 61560	-1 10820	-2 48330	-.16550	.59000	.09660	.59050	-39870	-35567	-39520
1 200	132 360	13 53260	-78440	-2 37050	-.11570	.57550	.09210	.58810	-4 2260	-35480	-35060
1 200	130 180	14 09270	-1 37160	-2 24520	-.12440	.49330	.10490	.59130	-4 4820	-31980	-.29950
1 200	128 000	14 74400	-2 03220	-2 01840	-.08170	.29880	.12570	.59460	-55480	-28230	-25710
1 200	126 030	15 28240	-2 21490	-1 80320	-.04320	.03780	.11990	.59520	-70800	-23480	-16490
1 200	136 670	11 92190	-85960	-2 8240	-.17710	.70970	.08260	.58930	-.38880	-30400	-.4810
GRADIENT		00000	00000	00000	.00000	.00000	.00000	.00000	00000	00000	00000

TABULATED SOURCE DATA, MSFC THT 604, SA-8F

DATE 10 JUL 75

(RIH069) ( 10 JUL 75 )

MSFC THT604 (SABF) SRB WITH ALL PROTOBERANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = 000 PHI = 270 000  
NOZZLE = 000

RUN NO.		103/ 0	RN/L = 7.10		GRADIENT INTERVAL = -5.00/ 5.00	
MACH	ALPHA	CNM	CLMM	CA	CYN	CYM
1.942	147 470	7.14140	.54260	-2.91570	-.08220	.30220
1.942	145 420	7.99130	1.10530	-2.90470	-.03500	.05760
1.942	143 180	8.84900	1.16470	-2.87610	-.02140	.11360
1.942	141 050	9.68390	1.42380	-2.82770	.01280	.08390
1.942	138 850	10.53460	1.54140	-2.74570	.03810	.05190
1.942	136 690	11.19860	1.62400	-2.59750	.04600	.06990
1.942	134 540	11.87510	1.71990	-2.44740	.06050	.07720
1.942	132 370	12.64710	1.84700	-2.31910	.07950	.08440
1.942	130 160	13.37250	1.83610	-2.17270	.08920	.09470
1.942	128 040	14.09050	1.99980	-2.02950	.09680	.09820
1.942	126 010	14.69050	2.00900	-1.89400	.11770	.09320
1.942	124 780	10.95920	1.78600	-2.54980	.03860	.11210
GRADIENT		00000	.00000	.00000	.00000	.00000

RUN NO.		31/ 0	RN/L = 5.20		GRADIENT INTERVAL = -5.00/ 5.00	
MACH	ALPHA	CNM	CLMM	CA	CYN	CYM
2.740	148 190	6.29920	.54320	-2.91110	-.00740	.14850
2.740	146 210	6.92750	.61670	-2.87880	.03480	.14350
2.740	144 110	7.62280	.72300	-2.86520	.05070	.13270
2.740	142 030	8.31840	.74340	-2.57710	.07530	.13630
2.740	139 930	9.05650	.90030	-2.52300	.07240	.14280
2.740	137 810	9.81190	1.130	-2.47830	.08750	.16220
2.740	135 720	10.51410	1.68140	-2.39760	.08650	.13790
2.740	133 620	11.23550	1.15000	-2.32880	.10150	.17980
2.740	131 510	11.97340	1.35270	-2.24900	.11570	.18020
2.740	129 440	12.47540	1.54620	-2.15460	.12190	.14780
2.740	127 400	13.00790	1.85520	-2.04050	.14380	.14040
2.740	125 810	9.82760	.99770	-2.47710	.07080	.13800
GRADIENT		00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, 1A.3F

2412 182

MSFC TWT604 (SABF) SFB WITH ALL PROTECTORANCES

(RIMUL3) (10 JUL 75)

REFERENCE DATA

SREF = 5030 SQ. IN. XMRP = 5 72 0 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = 000  
NOZZLE = 003

PARAMETRIC DATA

RUN NO. 32/ 0 RN/L = 5.67 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYNM	CSL	XCP/L	CBP1	CBP2	CBP3
4.450	148 640	5.36140	1.19590	-2.89060	.11960	-.01890	.03360	.56520	-.04560	-.01340	-.01320
4.450	146 680	5.99650	1.02770	-2.61360	.10550	.01020	.03290	.56940	-.04360	-.00680	-.00720
4.450	144 620	6.66090	1.07680	-2.52760	.10500	-.02690	.07380	.57020	-.03830	00180	00080
4.450	142 590	7.32680	1.02190	-2.47530	.11920	-.00920	.09360	.57200	-.03350	00950	00830
4.450	140 530	7.99210	1.03780	-2.41040	.11730	.03890	.08530	.57280	-.02840	01900	01720
4.450	138 450	8.68720	1.05810	-2.39620	.13150	.02080	.10430	.57340	-.02700	02610	.02450
4.450	136 400	9.35020	1.17840	-2.34980	.11490	.01510	.13340	.57310	-.02360	03600	03460
4.450	134 380	9.93190	1.49560	-2.35050	.15640	-.08380	.15700	.57110	-.01970	04610	04630
4.450	132 290	10.59590	1.79560	-2.26790	.15020	-.01680	.15920	.56950	-.02050	05440	05270
4.450	130 250	11.17400	2.14680	-2.13560	.16140	-.10230	.21210	.56770	-.02540	05850	06740
4.450	128 320	11.77990	2.29320	-1.99620	.14290	-.03900	.18780	.56750	-.02840	06960	08210
4.450	138 450	8.71390	1.06180	-2.39420	.11750	-.01520	.15560	.57340	-.02780	02610	02630
GRADIENT		00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	00000	00000



MSFC TM7604 (SABF) SRB WITH ALL PROTUBERANCES

(R14070) (10 JUL 75)

## REFERENCE DATA

SREF =	.5030 SQ. IN.	XAPP =	5 7210 IN. XS
LRFF =	.8000 IN.	YAPP =	.0000 IN. YS
BRFF =	8000 IN.	ZAPP =	.0000 IN. ZS
SCALE =	.0055		

## PARAMETRIC DATA

BETA	=	.000	PHI	=	.270 000
NOZZLE	=	.000			

RUN NO.	71/ 0	RM/L	6 32	GRADIENT INTERVAL	-5.00/ 5.00
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MACH	ALPHA	AM	C <sub>1</sub> X	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.901	169 010	.71460	-.21080	-1.99650	-.00420	.14890	.04320	63040	0.2740	0.570	0.2740
.901	167 050	.97540	-.56710	-2.06670	-.07320	.10420	0.5750	63080	0.2160	.04180	0.2310
.901	164 960	1.27030	-.010050	-2.215980	-.00310	.22390	0.3370	64790	0.0940	.03240	0.1200
.901	162 920	1.51670	-1.32360	-2.32940	.07200	.29510	0.2660	65460	-.00150	0.2450	-.00250
.901	160 870	1.78050	-1.58200	-2.32140	.07410	.14390	0.4760	65590	-.00710	0.1730	-.00920
.901	158 800	2.09080	-1.88730	-2.35600	.11460	-.10780	0.5950	65700	0.1640	-.02430	-.02430
.901	156 730	2.44450	-2.14330	-2.36660	.15180	-.25130	0.5150	65490	-.03000	-.02470	-.03950
.901	154 640	2.86390	-.249380	-2.39720	.20160	-.60020	.03730	.65440	0.08830	0.07470	-.09510
.901	152 480	3.30240	-.8.03610	-2.40600	.69470	-.89130	.03800	.65460	-.00920	-.00310	-.10360
.901	150 410	3.84280	-.8.47990	-2.36900	.90320	-.97280	.05030	.65760	-.10930	-.09800	-.09800
.901	148 420	4.46030	-3.56940	-2.35740	.70430	-.24390	0.7300	64890	-.156	0.1830	-.06150
.901	158 790	2.13630	-1.92090	-2.36970	.10850	-.16430	0.5010	65670	-.05310	-.02860	-.06150
GRADIENT	-.00000	.00000	.00000	.00000	.00000	.00000	.03900	.00000	.00000	.00000	.00000

RUN NO.	72/ 0	RN/L =	6.72	GRADIENT INTERVAL =	-5 00/ 5 00
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[illegible]

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

PARAMETRIC DATA

BETA = 000 PHI = 270.000  
 NOZZLE = 000

REFERENCE DATA

5030 SQ. IN. XMRP = 5.7210 IN. XS  
 8000 IN. YMRP = .0000 IN. YS  
 8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = 0055

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1.955	168.860	87490	-1.18090	-2.64940	-0.0960	-31490	.008F0	69350	-10560	-10300	-11020
1.955	166.860	125870	-1.30320	-2.66750	-1.0050	-32050	.02051	66780	-12030	-11840	-12830
1.955	164.710	180350	-1.43490	-2.73890	.31040	50400	.02380	64830	-13900	-13410	-14320
1.955	162.590	240830	-1.29800	-2.78630	.26340	31170	.03960	62730	-15390	-14900	-15730
1.955	160.460	304390	-1.07650	-2.84510	-2.27680	-25390	.01250	61220	-16420	-16200	-16910
1.955	158.300	370040	-1.02670	-2.88920	-1.6560	04210	.04350	60600	-17600	-17380	-18200
1.955	156.150	441930	-1.66020	-2.93070	-2.3060	.67640	.03260	59560	-18830	-18640	-19050
1.955	154.010	521500	-1.14120	-2.95230	-1.1140	93760	.04320	58560	-20470	-20290	-20890
1.955	151.810	600020	.17730	-2.96330	-1.1110	.43360	.04130	58100	-22700	-21510	-21620
1.955	149.690	669410	.49140	-2.95890	-0.07300	.21240	.05420	57740	-23940	-22180	-21880
1.955	147.680	724850	.36970	-2.93080	-0.4180	.30170	.05450	57920	-22950	-21300	-21070
1.955	158.350	365710	-77480	-2.84410	-1.2730	-01330	.03210	60070	-17590	-17400	-18170
GRADIENT		00000	00000	00000	00000	.00000	.00000	00000	.00000	00000	00000

MACH	ALPHA	CNM	CLMM	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
2.740	168.990	86090	-54040	-2.64970	-0.0960	-31790	.01730	64400	-09750	-09650	-10010
2.740	167.040	129330	-52160	-2.69370	-1.3570	-33970	.00380	61630	-10480	-10520	-10800
2.740	164.980	171680	-41670	-2.72630	-0.4410	-23680	.03300	60320	-10910	-11120	-10790
2.740	162.920	217970	-28480	-2.77050	.05650	-15410	.05210	59400	-11300	-11370	-07800
2.740	160.850	269060	-19730	-2.80710	-0.4640	-27480	.04080	58940	-11380	-11550	-08010
2.740	158.790	324270	-00820	-2.84350	-0.7800	-16290	.05430	58360	-11400	-11640	-10000
2.740	156.720	385130	34670	-2.88050	-0.5470	10060	.05940	57600	-11740	-12140	-10400
2.740	154.610	443040	25260	-2.91160	-0.4820	22570	.05940	57880	-11720	-12130	-10040
2.740	152.510	508860	34220	-2.94250	-0.4910	20110	.07210	57790	-11770	-11990	-10850
2.740	150.420	569490	45480	-2.92930	-0.0690	18520	.07560	57690	-11870	-11700	-10400
2.740	148.440	634140	55340	-2.91510	.02570	20940	.07030	57630	-12010	-11080	-08840
2.740	146.470	324930	-06670	-2.83220	-0.4680	-113720	.05240	58510	-11150	-11680	-10930
GRADIENT		00000	00000	00000	.00000	.00000	.01000	00000	00000	00000	00000

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 OF POOR QUALITY



## REFERENCE DATA

5030 SQ IN.	21400	5.7210 IN.	X5
8000 IN	17000	.0000 IN.	Y5
8000 IN	21400	.0000 IN.	Z5

RM NO 10: 0 RM/L 6.82 GRADIENT INTERVAL -5 00/ 5.00

MACH	ALPHA	CMI	CLIM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3 480	169 010	1 80530	-2 23360	-2 57190	-04390	-115730	00360	60700	-06910	-06980	-06970
3 480	167 060	1 12930	-115610	-2 61980	-06930	-116470	00000	50320	-07240	-07290	-07240
3 480	165 050	1 95310	-05980	-2 67430	-01440	-113590	00370	58650	-07450	-07380	-07380
3 480	165 000	1 95080	0186	-2 71820	-01630	-110830	02690	58260	-07450	-07580	-07440
3 480	162 940	2 41590	18130	-2 76630	-04180	-115520	03710	57720	-07510	-07580	-07270
3 480	160 880	2 41590	18130	-2 76630	-04180	-115520	03530	57560	-07520	-07580	-07140
3 480	158 800	2 94890	28130	-2 81670	-02850	-09660	00500	57560	-07350	-07500	-07060
3 480	156 720	3 51410	37050	-2 85970	-00930	-05200	04050	57480	-07420	-07570	-07060
3 480	154 630	4 09560	55680	-2 91010	-00400	-06770	00050	57230	-07430	-07500	-06900
3 480	152 500	4 72280	67180	-2 93940	-00360	-04690	06460	57180	-07630	-07360	-06780
3 480	150 420	5 35570	69180	-2 96470	-01430	-09170	05670	57280	-07520	-07040	-06640
3 480	148 430	5 93860	68030	-2 94070	-07390	-06650	08280	57400	-07210	-06600	-04750
3 480	158 800	2 94880	24120	-2 80450	-02750	-111570	04770	57670	-07060	-07440	-06810
3 480	158 800	2 94880	24120	-2 80450	-02750	-111570	00000	00000	00000	00000	00000

GRM NO	Q/ 0	RM/1 =	GRADIENT INTERVAL =	-5.00/	5 00
1	0	1.44			

MACH	ALPHA	CMH	CLUM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
450	169 090	60320	-14090	-2,44410	-0,1820	-1,12830	-0,1400	60230	-04,060	-04,120	-039,70
450	167 170	85620	01770	-2 50730	-	-	-03380	58180	-04,200	-04,280	-04,080
450	165 110	1 21350	04280	-2 54870	-03760	-03040	-02310	58050	-04,260	-04,400	-04,160
450	163 110	1 58850	18150	-2 61210	-05380	-03680	-04120	57400	-04,320	-04,490	-04,180
450	161 090	2 08290	34430	-2 66790	-01280	-	-00780	56990	-04,400	-04,620	-04,200
450	159 020	2 69120	43220	-2 72850	-00120	-00430	-01270	56840	-04,380	-04,020	-04,020
450	157 000	3 06910	74010	-2 78270	-	-00380	-05020	56370	-04,400	-04,260	-03950
450	154 950	3 65000	67130	-2 84440	06730	05090	05250	56840	-04,380	-04,100	-040,30
450	152 880	4 19800	87670	-2 89950	05050	02680	05450	56530	-04,340	-03770	-036,30
450	150 830	4 80770	88310	-2 91520	07870	04660	05990	56040	-04,400	-03370	-035,30
450	148 900	5 38610	95300	-2 92680	07750	04290	05960	56340	-04,240	-02800	-03370
450	159 030	2 57450	47140	-2,73190	-00120	00710	03430	56840	-04,200	-04,160	-03890
GRAND TOTAL	00000	00000	00000	00000	00000	00000	00000	00000	000	00000	00000

MSFC TWT604 (SARF) SRB WITH ALL PROTRUBANCES

(R1WJ71) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	5030	SQ	IN.	XPRP	=	5.7210	IN.	XS
LREF	=	8000	IN		YPRP	=	.0000	IN.	YS
SBREF	=	8000	IN		ZPRP	=	0000	IN	ZS
SCALE	=	0055							

## PARAMETRIC DATA

BETA • 000 P41 - 270.000  
NOZZLE - 000

RUN NO. 61/ 0    HN/L = 5.29    GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

PRJN NO. 62/ 0 PW/L = 5.00 GRADIENT INTERVAL = -5 00/ 5 00

ALPHA	CMF	CLIM	CA	CYM	CYMH	CBL	ACP/L	CBP1	CBP2	CBP3
598	- 48710	1 31070	- 1 65820	03120	31840	- 04210	.80290	05290	05650	05380
598	- 36320	1 14010	- 1 54790	- 03220	35086	- 04000	06810	06810	07700	06900
598	- 26190	93720	- 1 41960	03220	31830	- 00160	87520	08130	09320	07970
598	- 15250	54740	- 1 32760	- 02440	41890	- 03460	86860	08780	09500	08690
598	- 00450	26330	- 1 27540	- 03580	36120	01200	29190	08640	09270	08640
598	179 540	07360	- 1 26550	- 02160	32120	03330	5	08640	09270	08640
598	137 520	- 05630	- 1 32800	- 00420	32170	03330	27770	08010	08010	08620
598	175 520	- 39160	- 1 42860	- 01060	23990	02520	72210	08450	08630	09350
598	32720	- 58100	- 1 53340	- 00600	18490	- 01890	72820	06950	06090	08260
598	40530	- 86780	- 1 64580	05300	- 00340	- 01990	72970	06810	06070	08160
598	63590	- 1 05420	- 1 74770	05710	- 06700	00010	71870	04640	04580	04840
598	09660	30500	- 1 28740	- 02160	31420	04960	32490	07920	07920	08880
598	00000	00000	00000	- 02160	00000	00000	00000	00000	00000	00000

DATE: JUL 75,

TABLE A-70 SOURCE DATA, MSFC TWT 604, SA-BF

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SSC 7W1604 (SABF) SRS WITH ALL PROJECTIONS

10 JUL 75

## REFERENCE DATA

Variable	Mean	SD	Min	Max
SCRF	5.03	1.19	1	7
LCRF	4.00	1.19	1	7
BCRF	4.00	1.19	1	7
SCAF	5.03	1.19	1	7

BETA = 000 PHI = 270 000  
NOZZLE = 000

## PARAMETRIC DATA

RUN NO. 63/ 0 FN/L = 6 3/1 GRADIENT INTERVAL = -5.00' 5 00

[illegible]

RUN NO. 64 / 0 RN/L = 6 71 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]



REFERENCE DATA										PARAMETRIC DATA									
SREF	LREF	BREF	SCALE	5030 SQ. IN.	XMRP	5.7210 IN. XS	YMRP	.0000 IN. YS	ZMRP	.0000 IN. ZS	BETA	PHI	270.000	NOZZLE					
GRADIENT DATA																			
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3								
1.954	189.700	-67300	1.16380	-2.57890	.11530	.26970	-.01030	.72440	-.08530	-.08340	-.08300								
1.954	187.730	-43970	.94460	-2.50300	.08080	.24850	-.01200	.75860	-.07300	-.06730	-.06800								
1.954	185.660	-28600	.77540	-2.45360	.06300	.14270	-.00750	.80450	-.06720	-.05740	-.05740								
1.954	183.630	-15990	.46310	-2.43020	.01410	.08460	.00200	.81960	-.07310	-.05040	-.05110								
1.954	181.590	.00390	.20320	-2.41140	.03890	.09140	.00520	-3.58760	-.05930	-.05070	-.05100								
1.954	179.520	.09210	-.16240	-2.42410	.06010	.06450	.01720	.72720	-.04940	-.04900	-.05050								
1.954	177.480	.21130	-.36800	-2.45160	.05320	.02850	.01130	.72550	-.05300	-.05140	-.05210								
1.954	175.420	.31940	-.72390	-2.43300	.07280	.06350	.01840	.76870	-.05460	-.05240	-.05350								
1.954	173.340	.50280	-.91750	-2.56510	.07630	.02920	.02520	.73220	-.08130	-.07760	-.08170								
1.954	171.290	.68670	-1.05740	-2.62250	-.05270	-.33500	.01490	.70890	-.10160	-.09710	-.10570								
1.954	169.330	.93240	-1.22700	-2.66920	-.07970	-.46770	.02220	.59080	-.11820	-.11560	-.12610								
1.954	179.510	.12440	-.22450	-2.40140	.05050	.06260	.01500	.73060	-.06100	-.06020	-.06440								
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000								
GRADIENT DATA																			
MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3								
2.740	189.600	-.72320	.68930	-2.58460	.07820	.27470	-.00790	.66110	-.09080	-.09310	-.09290								
2.740	187.660	-.46390	.64900	-2.53250	.06260	.20660	-.00230	.69750	-.08050	-.07880	-.08290								
2.740	185.630	-.31430	.56160	-2.47880	-.02830	.04780	-.01330	.72920	-.06950	-.06410	-.07330								
2.740	183.600	-.15500	.37690	-2.44520	.00150	.01100	-.00900	.78170	-.05770	-.05340	-.05810								
2.740	181.560	.05340	.22430	-2.41160	.00250	.01920	-.01120	.24100	-.05430	-.05220	-.05260								
2.740	179.540	.05740	-.07170	-2.40950	.04110	.02580	-.01880	.68530	-.10180	-.04860	-.05010								
2.740	177.520	.12420	-.25120	-2.43330	.00950	.01330	-.00690	.74960	-.05200	-.05000	-.05030								
2.740	175.500	.21130	-.45150	-2.46080	.01330	.06580	.02090	.75770	-.05960	-.05850	-.05730								
2.740	173.430	.35380	-.85920	-2.52800	.04060	.00140	.01910	.73530	-.08900	-.08800	-.08690								
2.740	171.420	.53880	-.88110	-2.57170	-.01780	-.08800	.03080	.68800	-.07930	-.07880	-.08080								
2.740	169.490	.66570	-.88830	-2.63230	-.04490	-.31180	.03900	.64770	-.09100	-.08390	-.08250								
2.740	179.540	.07400	-.08870	-2.41370	.04110	.01680	.01590	.65910	-.04880	-.04800	-.04940								
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000								

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 604, SA-9F

PAGE 196

MSFC THT604 (SABF) SRB WITH ALL PROTUBERANCES

(RIH071) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SG. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

PARAMETRIC DATA

BETA = .000 PHI = 270.000  
NOZZLE = .000

RUN NO. 8/ 0 RM/L = 5.43 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CN*	CLIM	CA	CYN	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
4.450	189.520	-.60750	.20760	-2.36790	-.00940	-.06340	-.70240	.61120	-.03690	-.03750	-.03630
4.450	187.600	-.40470	.31660	-2.35460	-.01220	-.01230	-.01680	.64720	-.03490	-.03590	-.03410
4.450	185.590	-.25960	.27190	-2.32630	-.01160	-.01400	-.03540	.66880	-.03080	-.03230	-.03080
4.450	183.580	-.17090	.21540	-2.29380	.00520	-.08210	-.03930	.68620	-.02980	-.03020	-.02920
4.450	181.570	-.11380	.15720	-2.26970	.00400	-.01110	-.01720	.69630	-.02840	-.02920	-.02760
4.450	179.550	.00240	-.07180	-2.26890	.00850	-.08160	-.00060	2.97650	-.02760	-.02780	-.02620
4.450	177.550	.00280	-.21400	-2.28570	.01080	-.09940	.00120	6.65630	-.02860	-.02800	-.02640
4.450	175.530	.14750	-.29160	-2.32040	.00980	-.01330	-.01590	.74450	-.02960	-.02980	-.02880
4.450	173.510	.23350	-.28000	-2.35910	-.00170	-.13980	-.00360	.68120	-.03210	-.03290	-.03080
4.450	171.490	.43630	-.24520	-2.39400	-.00040	-.21140	.00250	.62930	-.03630	-.03690	-.03450
4.450	169.590	.60840	-.17490	-2.44280	-.00410	-.10580	.03020	.60630	-.03890	-.03890	.01520
4.450	179.550	.03130	-.10000	-2.28000	.00720	-.01220	-.01640	.84340	-.02760	-.02860	-.02540
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00030	.00000	.00000	.00000

MSFC TWT604 (SABF) SR8 WITH ALL PROTUBERANCES

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP	=	5.7210 IN. XS	BETA	=	.000	PHI	=	315.000
LREF	=	.8000 IN.	YMRP	=	.0000 IN. YS	NOZZLE	=	.000			
BREF	=	.6000 IN.	ZMRP	=	.0000 IN. ZS						
SCALE	=	.0055									

RUN NO	4237	0	RN/L	5.12	GRADIENT INTERVAL	-5.00/	5.00
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[illegible]

424/ 0	5.01	-5.00/	5 00
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MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.602	70.420	12.87520	16.41180	.08460	.02200	.41310	.08150	-.47940	-.00000	.00000	-.00000
.602	72.290	12.98300	16.10630	.15840	.03640	.28560	.09420	.48220	-.00000	.00000	.00000
.602	74.300	12.82010	15.39700	.21740	-.10010	-.02160	.08090	-.48540	.00000	.00000	.00000
.602	76.280	12.81430	14.68350	.32710	-.00100	-1.37640	.06700	.48990	.00000	.00000	.00000
.602	78.260	12.75920	13.53830	.62290	-.02000	-1.17890	.08720	.43680	-.00000	.00000	.00000
.602	80.220	12.67620	11.36560	.62290	-.24880	-1.51450	.07280	.51020	-.00000	.00000	.00000
.602	82.220	12.86690	10.27270	.71810	-.27340	-2.13840	.09080	.51820	-.00000	.00000	.00000
.602	84.180	13.03290	9.25490	.81990	-.21420	-2.84860	.07070	.53540	.00000	.00000	.00000
.602	86.150	13.15650	8.95670	.89690	-.18320	-3.25010	.07660	.53340	.00000	.00000	.00000
.602	88.130	13.13490	6.87110	.94650	-.34230	-2.76070	.06800	.54070	-.00000	.00000	.00000
.602	90.020	13.13260	6.40720	.90780	-.45750	-2.69020	.08540	.54360	.00000	.00000	.00000
.602	80.220	12.72680	11.39410	.60510	-1.14710	-1.92370	.05990	.51030	-.00000	.00000	.00000
GRADIENT		.00000	-.00000	.00000	.00000	-.00000	.00000	.00000	-.00000	.00000	.00000

81H072) ( 10 JUL 75 )

MSFC TH1604 (SABF) SR8 WITH ALL PHOTOBERANCES

## PARAMETRIC DATA

BETA	=	.000	PHI	=	315.000
NOZZLE	=	.000			

## REFERENCE DATA

SCALE	=	.0055	ZMAP	=	.0000 IN. Z5
BREF	=	.0050 IN.	YMAP	=	.0000 IN. Y5
REF	=	.0000 IN.	XMAP	=	.0000 IN. X5
BREF	=	.0000 IN.			

RAIN NO 425/ 0 RN/I = 6.34 GRADIENT INTERVAL = -5.00' 5.00

[illegible]

RUN NO 426/ 0 RN/L = 6.93 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CEP2	CBP3
1.199	70.590	18.48600	15.42650	.93246	-.21200	-.66140	-.08430	.51530	.00000	.00000	.00000
1.199	72.450	18.67600	14.96000	.92760	-.20930	-.67900	.04550	.51800	.00000	.00000	.00000
1.199	74.450	18.87420	14.58720	.98620	-.20770	-.66310	.05770	.52030	.00000	.00000	.00000
1.199	76.440	19.01370	14.27330	.96070	-.23640	-.65440	.04930	.52210	.00000	.00000	.00000
1.199	78.400	19.21460	13.98240	.92590	-.23940	-.60480	.07280	.52430	.00000	.00000	.00000
1.199	80.410	19.43970	13.73000	.87470	-.26330	-.56510	.07060	.52580	.00000	.00000	.00000
1.199	82.410	19.62150	13.27920	.82820	-.21710	-.71160	.06050	.52820	.00000	.00000	.00000
1.199	84.360	19.75110	12.67380	.76710	-.17490	-.85310	.07540	.53100	.00000	.00000	.00000
1.199	86.330	19.84470	11.59430	.70340	-.16660	-.91820	.06320	.53410	.00000	.00000	.00000
1.199	88.320	19.82290	11.64050	.62430	-.15080	-.94090	.07140	.53550	.00000	.00000	.00000
1.199	90.220	19.67750	11.53690	.53220	-.14590	-.93590	.06980	.53530	.00000	.00000	.00000
1.199	90.390	19.36150	13.66230	.86930	-.25780	-.63230	.05540	.52580	.00000	.00000	.00000
GRADIENT			.00000	.00000	.00000		.00000	.00000	.00000	.00000	.00000

(RIH073) ( 10 JUL 75 )

MSFC TWT604 (SABF) SRB WITH ALL PROTRUDANCES

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SO. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055  
BETA = .000 PHI = 315.000  
NOZZLE = .000

RUN NO. 344/ 0 RN/L = 5.41 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP3
.398	129 590	5.01230	-6.34040	-1.76630	.85870	1.87400	.04980	.68660	.00000
.398	127 690	5.35080	-6.06190	-1.69090	1.04200	2.15370	.06890	.57580	.00000
.398	125 680	5.81600	-5.77330	-1.58900	1.30380	2.32020	.02220	.66440	.00000
.398	123 660	6.27420	-5.53870	-1.48480	1.21050	2.31090	-.01760	.55540	.00000
.398	121 680	6.77640	-5.47010	-1.37030	.59360	1.53470	.03860	.64920	.00000
.398	119 650	7.20970	-5.18170	-1.21710	.24120	.72680	.03190	.64200	.00000
.398	117 660	7.68130	-4.37180	-1.07230	.02100	-.66140	.00120	.62980	.00000
.398	115 660	7.83530	-3.86330	-.93230	.70730	-1.22370	.04260	.62360	.00000
.398	113 670	8.12190	-3.48140	-.79420	1.25560	-1.59500	.02990	.61830	.00000
.398	111 670	8.69170	-2.71110	-.66570	1.17860	-2.86660	-.01060	.60880	.00000
.398	109 780	9.06890	-1.85790	-.50400	1.07830	-2.98240	.00410	.60010	.00000
.398	119 660	7.24840	-4.84290	-1.22420	.05950	.13620	.07370	.63790	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 345/ 0 RN/L = 5.13 GRADIENT INTERVAL = -5.00/ 5.00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP3
.598	129 480	7.36620	-5.76990	-1.77000	1.94620	3.69910	.07730	.64730	.00000
.598	127 580	8.00570	-6.01080	-1.68240	1.44520	2.77400	.07330	.64460	.00000
.598	125 570	8.78460	-5.66190	-1.56060	.97650	1.72540	.08910	.63600	.00000
.598	123 550	9.48180	-5.03270	-1.44350	.65110	1.71980	.08370	.62670	.00000
.598	121 560	10.06120	-4.25620	-1.30330	.25540	1.20800	.05940	.61790	.00000
.598	119 580	10.26160	-3.04050	-1.15230	.40750	1.40950	.09750	.60750	.00000
.598	117 590	10.47300	-2.25440	-.98400	.31470	-2.75320	.08340	.60390	.00000
.598	115 590	11.10870	-1.66900	-.86030	-.07600	-3.36540	.11150	.59560	.00000
.598	113 600	11.46730	-1.11330	-.68430	-.29780	-5.61210	.09700	.59130	.00000
.598	111 580	11.73050	-.83590	-.46770	.18610	-4.05070	.11460	.58920	.00000
.598	109 700	11.97250	-.50550	-.30500	.51680	-3.44580	.12730	.58680	.00000
.598	119 580	10.22690	-3.02690	-1.15030	.43750	-1.56240	.06800	.60750	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SRB WITH ALL PROTUBERANCES

(11K073) (10 JUL 75)

## REFERENCE DATA

SREF	•	.5030	50. IN.	YMRP	•	5.7210	IN. XS
LREF	•	.8000	IN.	YMRP	•	.0000	IN. YS
BREF	•	.8000	IN.	ZMRP	•	.0000	IN. ZS
SCALE	•	.0055					

### PARAMETRIC DATA

BETA	•	.000	PHI	•	315.000
NOZZLE	•	.000			

RUN NO. 348/ 0 RN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 347/ 0 RN/L = 0.06 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

(R14074) ( 10 JUL 75 )

MSFC TWTB04 (SABF) SRB WITH ALL PROTRUDANCES

### PARAMETRIC DATA

BETA	=	.000	PHI	=	315.000
NOZZLE	=	.000			

## REFERENCE DATA

SREF	=	.5030 SQ. IN.	XMRP	=	5.7210 IN. X5
LREF	=	.8000 IN.	YMRP	=	.0000 IN. Y5
BREF	=	8000 IN	ZMRP	=	.0000 IN. Z5
SCALE	=	.0055			

GRIN NO. 68/ 0 RM/L = 5.27 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

```

RUN NO. 67/ 0 RN/L = 5 00 GRADIENT INTERVAL = -5 00/ 5 00

```

MACH	ALPHA	CNH	CLM	CA	CVM	CYN	CBL	XCP/L	CBP1	CBP2	CBP3
598	169 040	62100	-1.41980	-1 56290	- 21280	.17120	-.00280	.76990	.07270	09410	09410
598	147 110	81860	-1 69230	-1 72640	- 25820	12670	- 01160	.75200	05810	09010	08920
598	165 090	1 04920	-1 87730	-1.80440	- 29820	22630	- 00960	72930	03890	08440	08350
598	163 080	1 27920	-2 05120	-1 85900	- 31210	36120	- 02080	71430	03710	08160	08000
598	151 010	1 58240	-2 15010	-1.93190	- 35650	61680	- 00820	69420	01320	06690	06240
598	159 050	1 84400	-2 00550	-1.98780	- 36430	1 43640	- 00680	67310	02100	06110	04770
598	156 960	2 16920	-1 89010	-2 06470	- 23150	2 18380	.00360	65450	.01930	04780	03090
598	154 950	2 43060	-1 92690	-2 09650	- 08940	2 16000	02110	64890	- 00470	02370	02460
598	152 890	2 83520	-2 01890	-2 14940	- 04240	2 36910	00850	64150	- 03240	00250	00260
598	150 850	3 08440	-2 04310	-2 04310	.61520	13370	01010	64510	- 08970	- 02880	- 02250
598	148 930	3 49050	-2 46850	-2 04080	.26580	04520	.02130	64110	- 15270	- 04680	- 03960
598	159 010	1 77930	-2 05430	-1 99020	- 36390	1.39550	01950	67760	02280	05760	04590
GRADIENT	90000	90000	00000	00000	00000	00000	00000	.00000	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SAB) SRB WITH ALL PROTOBERANCES

(R1H074) ( 10 JUL 75 )

## REFERENCE DATA

SREF = 5030 SQ IN XRRP = 5.7210 IN XS  
LREF = 8000 IN. YRRP = 0000 IN. YS  
BREF = 8000 IN ZRRP = 0000 IN. ZS  
SCALE = 0055

## PARAMETRIC DATA

BETA = 000 PHI = 315 000  
NOZZLE = 000

RUN NO. 66/ 0 RN/L = 6.30 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CN	CLIM	CA	CY	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
.899	168 990	81300	-1.33720	-1.91600	04740	24980	.00720	61720	01070	.03320	00440
.899	167 040	1 06270	-1.38660	-1.99410	12520	31890	.01140	.63240	-00010	.02650	-00640
.899	164 970	1 33820	-1.05930	-2 07170	-01620	.15800	.02680	64790	-00220	.02450	-00950
.899	162 930	1 60010	-1.38900	-2 14230	-13700	.01970	.03640	65420	-00150	.02310	-01950
.899	160 870	1 88900	-1 52460	-2 23360	-16180	.21260	.03670	64920	-00030	.02110	-02650
.899	158 790	2 19370	-1.61330	-2.32110	-.05610	.03820	.01670	64340	-.02500	.00310	-04270
.899	156 720	2 54470	-1.84410	-2.33280	.15160	-.13130	.01950	64250	-.05740	-.02610	-07050
.899	154 670	2 89900	-2.13050	-2.33350	.33600	-.12330	.03230	64330	-.08090	-.04680	-08230
.899	152 530	3 41850	-2.53940	-2 33420	51670	.22230	.02970	64400	-1.1610	-.06700	-09020
.899	150 390	4.17180	-2.75330	-2.33330	.93300	1 25650	.04860	63720	-1.3540	-.09500	-11070
.899	148.370	4 98930	-2 83560	-2 32860	1 05910	1 95490	.03420	62970	-16110	-14290	-14360
.899	146 790	2.20230	-1.70980	-2.31810	-.05070	.07660	.02890	64670	-.03840	-01270	-04510
GRADIENT		00000	00000	00000	.00000	00000	00000	00000	00000	00000	00000

RUN NO. 65/ 0 RN/L = 6.71 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CN	CLIM	CA	CY	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1 194	168 840	1 04390	-1 45850	-2 60560	-56570	-48440	.01770	69710	-08840	-08800	-11290
1 194	166 870	1 29070	-1 68100	-2 68960	-66750	-41910	.02650	.68960	-1.0320	-10230	-13290
1 194	164 780	1 61170	-2 09560	-2.75520	-70820	-27530	.03680	.69010	-11040	-10870	-14090
1 194	162 680	1 93280	-2 48010	-2.79160	-.51440	-.78830	.02150	62680	-11810	-11640	-15150
1 194	160 590	2.41110	-2 86440	-2 79250	-14740	-93150	.03210	68030	-14350	-13170	-17030
1 194	158 420	3 02930	-3 11880	-2.80270	.21760	-1 02450	.03350	66740	-17110	-14350	-18340
1 194	156 260	3 83560	-3 04800	-2 80980	36850	-1 04650	.05660	64820	-20710	-17740	-21430
1 194	154 090	4 65440	-3.16650	-2.80530	.44750	-.97460	.04650	.63890	-.21940	-.20150	-23250
1 194	151 850	5 77050	-2 59640	-2 81160	.42640	1 02330	.05560	62010	-23970	-23930	-26660
1 15	149 710	6 58120	-2.40750	-2.78670	.46730	20450	.05560	61320	-26650	-25910	-30250
1 194	147 660	7 45040	-2 21810	-2 75370	.47790	-.36770	.05450	60770	-26880	-21280	-32180
1 194	158 400	3 05430	-3.12810	-2.77460	.22790	-97390	.03630	66690	-17470	-13910	-17689
GRADIENT		.00000	.00000	00000	.00000	00000	00000	.00000	.00000	.00000	00000

DATE 10 JUL 75

TABLED SOURCE DATA, MSFC TWT 604, SA-8F

WSEC TWT604 (SABF) SRR CLEAN W/RINGS (NOZ. 01H.)

(R1H073) (10 JUL 75)

## REFERENCE DATA

SCALE =	0055		
8REF =	8000 IN.	ZMRP =	.0000 IN. Z5
4REF =	8000 IN.		
1REF =	8000 IN.	YMRP =	.0000 IN. Y5
5REF =	5030 SQ IN.	XMRP =	5.7210 IN. X5

## PARAMETRIC DATA

BETA - .000 PHI - .000  
ALPHA - .000  
NOZZLE - 2.500

RUN NO	146/ 0	4 89	GRADIENT INTERVAL	.5.00/	5 00

[illegible]

RUN NO. 145/ 0 RM/L = 6.17 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 80N, SA-8F

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MSFC THT604 (SABF) SRB CLEAN W/RINGS (NOZ. 01M.)

(R1H075) ( 10 JUL 75 )

## REFERENCE DATA

SRF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BRF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

BETA = .000 PHI = .000  
 NOZZLE = 2.500

## PARAMETRIC DATA

RUN NO. 144/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1.196	147 450	7 20450	-2 36130	-2.78890	-0.02390	-1.2610	00600	61010	-38130	-36140	-40070
1.196	145 380	8 14140	-1.98880	-2.72900	0.6250	-1.16320	02100	60330	-38830	-36370	-39590
1.196	143 160	9 26200	-1.48970	-2.68370	0.0360	-1.04030	01370	59650	-41340	-39180	-40930
1.196	141 000	10 33180	-88580	-2 60250	-0.08880	-0.09300	02060	59040	-40490	-39720	-41250
1.196	138 840	11 15260	-76690	-2 51900	0.3800	-38270	01180	58900	-38710	-38750	-40230
1.196	136 640	12 24950	-10130	-2 40460	-0.05370	-46240	02390	58400	-40370	-42400	-40370
1.196	134 490	13 39950	-86940	-2 28760	0.07040	-1.16090	02060	58380	-39730	-38800	-37740
1.196	132 350	14 32420	-36970	-2 14030	0.09500	-1.2560	02030	58050	-40380	-37280	-37120
1.196	130 170	15 37110	-44000	-1 99320	0.0960	-1.6190	00920	58590	-46940	-35430	-33100
1.196	128 050	16 42030	-52610	-1 80900	1.0280	-1.1520	01040	58840	-36580	-31310	-28730
1.196	126 030	17 45500	-90000	-1 61180	1.0540	-2.2110	00360	58850	-63900	-30100	-20700
1.196	124 640	18 25470	-03420	-2 39550	-0.05320	-41590	01180	58360	-40860	-42840	-40100
1.196	122 250	19 00000	00000	0.0000	0.0000	0.0000	00000	00000	00000	00000	00000

RUN NO 114/ 0 RN/L = 7.01 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1.950	147 510	7 15020	1 08020	-2 77530	0.1040	0.0570	01010	57100	-24270	-22560	-22410
1.950	145 480	8 83980	1 48640	-2 74850	0.2140	-0.1480	00860	56790	-25080	-22930	-22850
1.950	143 300	9 68100	1 82530	-2 71090	0.2710	-0.2430	00970	56520	-26250	-23290	-23500
1.950	141 110	10 47530	1 90540	-2 60890	0.3000	0.0430	00170	56700	-22850	-20570	-20460
1.950	138 970	11 17510	2 16260	-2 45500	0.4810	-0.03340	01250	56600	-24380	-21140	-22290
1.950	136 840	12 85510	2 44610	-2 33440	0.7090	-0.03100	01590	56500	-24250	-20270	-21770
1.950	134 640	13 62510	2 53100	-2 22340	0.7010	-0.08100	01310	56560	-24200	-19720	-21140
1.950	132 520	14 28400	2 61360	-2 12310	0.8900	-0.03520	00120	56600	-25290	-19040	-20160
1.950	130 320	15 95190	2 82000	-2 01160	1.0200	-0.05480	01370	56570	-26660	-17950	-18740
1.950	128 330	16 33080	3 25960	-1 90110	1.1250	0.00020	01020	56340	-27920	-15160	-16260
1.950	126 220	17 17220	3 35050	-1 76910	1.2050	-0.02960	00100	56410	-30780	-15230	-15350
1.950	124 890	18 68730	2 51330	-2 31580	0.5440	-0.06670	00490	56420	-24040	-14600	-21500
1.950	122 250	19 00000	00000	0.0000	0.0000	0.0000	00000	00000	00000	00000	00000

TABULATED SOURCE DATA, MSFC TWT 60N, SA-8F

DATE 10 JUL 75

(R1H076) ( 10 JUL 75 )

MSFC TWT60N (SABF) SRB CLEAN W/RINGS (NOZ. 01N.)

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 50. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA =  
NOZZLE =

000  
000

RUN NO. 135/ 0 RN/L = 4.80 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
597	169 040	63950	-1.48260	-1.63700	-0.01410	-0.06650	.04000	.77250	.06030	.03710	.07280
597	167 110	.84080	-1.72070	-1.69840	-0.02940	.00590	.02630	.75030	.04940	.03060	.06360
597	165 060	1 12450	-1.95650	-1.77930	-0.03620	.04630	-.00110	.72530	.03630	.02650	.04970
597	163 050	1 33200	-2.01380	-1.84140	-0.01010	.05140	.03000	.70670	.02560	.01840	.04440
597	161 050	1 56160	-2.03090	-1.90370	.08210	.08350	.03430	.68950	.01310	.00590	.03720
597	159 010	1 82360	-2.02080	-1.95880	.01480	.08450	.03310	.67380	-.00550	-.00190	.03120
597	156 960	2 10770	-1.93800	-2.00780	.07690	.15780	.03030	.66050	-.02610	-.02430	.02300
597	154 950	2 39410	-1.93800	-1.99910	.12620	.21190	-.00320	.64940	-.05300	-.04310	.01320
597	152 880	2 79260	-1.60610	-2.00200	.20090	.66810	.01550	.63030	-.08910	-.06840	-.00010
597	150 860	3 10740	-1.48270	-2.04130	.27600	.69730	.00720	.62230	-.14840	-.12320	-.01720
597	148 920	3 63220	-1.77690	-2.03510	.27100	.55190	.00530	.62330	-.24150	-.15950	-.03780
597	158 990	1.79150	-2.01580	-1.95030	.02720	.10200	.02220	.67520	-.00470	-.00650	.03000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 136/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
902	168 590	.86100	-2.2390	-1.87850	-0.01620	.02730	.04090	.60460	-.07970	-.04540	.04650
902	167 040	1.08340	-3.36720	-1.98290	-0.03600	.00220	.03490	.61100	-.08860	-.05530	.04290
902	164 960	1 37210	-3.68010	-2.09360	-0.01810	.04760	.02550	.62380	-.09720	-.06430	.05030
902	162 950	1 59640	-3.92950	-2.16740	.00750	.05090	.03870	.63090	-.10690	-.07620	.04720
902	160 850	1 92730	-3.32750	-2.19310	-.00380	.10810	.02570	.63960	-.12890	-.09190	.04270
902	158 800	2 17450	-3.54550	-2.23840	-.00100	.10660	.02630	.64140	-.13140	-.09470	.03620
902	156 750	2 47450	-3.74330	-2.24950	.00160	.08740	.03860	.64080	-.13970	-.09960	.02680
902	154 670	2 82400	-3.04780	-2.25190	.03250	.06530	.02900	.64730	-.14170	-.12000	.01390
902	152 540	3 21170	-2.52430	-2.25950	.02920	-.09240	.03500	.65200	-.15920	-.14660	.00120
902	150 420	3 65750	-3 14980	-2.29560	.04510	.33310	.00610	.65200	-.20720	-.18240	-.00410
902	148 410	4 52900	-3 23740	-2.29250	.02280	-.01980	.02160	.61170	-.23880	-.20460	-.05010
902	158 760	2 26290	-1 60900	-2 26230	-.02970	.10620	-.01070	.64140	-.13390	-.09700	.03460
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00700	.00000	.00000

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TABULATED SOURCE DATA, MSFC TMT 804, SA-8F

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MSFC TMT804 (SABF) SRB CLEAN W/RINGS (NOZ. QIM.)

(R1M078) ( 10 JUL 75 )

## REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 SREF = 8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = 0055

## PARAMETRIC DATA

BETA = 000 PHI = 000  
 NOZZLE = 2 500

RUN NO. 137/ 0 RN/L = 6.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.198	168 850	.92460	-1.57300	-2.53220	.04330	.04160	-.01770	.72220	-.14650	-13720	-15920
1.198	166 850	1.13060	-1.08500	-2.80110	-.01160	-.03130	-.01060	.71700	-.18560	-10420	-17700
1.198	164 790	1.46680	-2.11050	-2.84180	-.02940	-.17130	-.00760	.70070	-.17620	-11860	-18800
1.198	162 700	1.80580	-2.34800	-2.86330	-.03480	-.18820	-.01120	.68600	-.17940	-11360	-18430
1.198	160 600	2.38310	-2.75740	-2.89080	-.04460	-.14260	-.00840	.67780	-.21940	-10470	-21900
1.198	158 430	3.00570	-3.14320	-2.73020	-.22730	-.02720	-.01770	.66870	-.25460	-22490	-24310
1.198	156 250	3.69040	-3.37350	-2.74680	-.05940	-.06410	-.01700	.65790	-.27440	-24410	-26140
1.198	154 130	4.38410	-3.38890	-2.74890	.04430	-.32170	-.01630	.64640	-.29610	-26550	-28590
1.198	151 910	5.25400	-3.27190	-2.76590	.01650	-.01350	-.02060	.63410	-.31570	-28940	-32120
1.198	149 760	6.17860	-2.96630	-2.75140	.02250	.05010	-.01330	.62250	-.33890	-31520	-34820
1.198	147 680	7.16300	-2.54820	-2.72700	.05480	-.02170	-.01160	.61230	-.36070	-34030	-37550
1.198	158 390	3.05360	-3.13770	-2.72160	-.25010	-.04690	-.01040	.65720	-.24650	-21860	-23670
GRADIENT		00000	00000	00000	00000	00000	00000	00000	0.000	00000	00000

RUN NO. 115/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
1.952	168 850	.88210	-1.24250	-2.52470	.02070	.04550	.02060	.69830	-.12430	-12200	-13110
1.952	166 850	1.30040	-1.40970	-2.56400	.04440	.05390	-.01910	.67180	-.13620	-13510	-14650
1.952	164 720	1.82100	-1.52000	-2.61980	.01630	-.08150	-.00480	.65150	-.15230	-15000	-16030
1.952	162 580	2.40930	-1.50220	-2.67680	-.11450	-.24970	.00090	.63420	-.16450	-16230	-17210
1.952	160 430	3.04550	-1.41180	-2.75020	.05580	-.00780	.00860	.62120	-.17170	-16980	-17810
1.952	158 300	3.71270	-1.12830	-2.75860	.05300	-.05770	.00460	.60820	-.18470	-18320	-19240
1.952	156 140	4.39000	-.75960	-2.78250	.05640	-.17260	-.01150	.59750	-.19660	-19540	-20680
1.952	154 010	5.13940	-.41190	-2.81300	.07030	-.28400	-.00440	.58930	-.21510	-21430	-22440
1.952	151 820	5.89010	.00100	-2.82390	.07410	-.03080	.00070	.58340	-.22760	-21420	-22440
1.952	149 720	6.59750	.47450	-2.80240	.04990	.04030	.00350	.57760	-.24440	-22590	-23940
1.952	147 700	7.25190	.79010	-2.79190	.05000	.06960	-.00480	.57450	-.26460	-23450	-24960
1.952	158 340	3.69100	-.84790	-2.72960	.00130	-.08160	-.00830	.60210	-.18720	-18540	-19450
GRADIENT		00000	00000	00000	00000	.00000	00000	00000	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

PAGE 207

MSFC TWT 604 (SABF) SRB CLEAN W/RINGS (NOZ, GIM.)

(R14077) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN XMRP = 5 7210 IN XS  
LREF = 8000 IN YMRP = .0000 IN YS  
BREF = 8000 IN ZMRP = .0000 IN ZS  
SCALE = 0055

BETA = .000 PHI = .000  
NOZZLE = 2.500

PARAMETRIC DATA

RUN NO 125/ 0 RN/L = 4 91 GRADIENT INTERVAL = -3 0/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
598	189 550	- 50520	1 46060	-1 27650	.04960	- 05050	- .00840	82050	06540	07520	07610
598	187 630	- 37660	1 20910	-1 16550	05430	- 11380	- 02640	84520	08230	08850	09120
598	187 610	- 27610	85800	-1 07260	04290	00610	- 04350	83680	09840	10730	10730
598	187 640	- 19550	49300	-1 01230	07520	- 12800	- 03160	78910	11510	12480	11590
598	31 530	- 09540	14030	-1 00550	05210	.00350	- 06590	70330	11530	11880	11260
598	179 540	08420	- 26740	-1 05560	.05950	- 07530	- 04960	84220	.490	11490	11310
598	177 500	16070	- 56620	-1 15210	05050	- 04670	- 06590	87080	11260	10930	11620
598	175 510	21360	- 74580	-1 26440	06550	- 04190	- 05170	86810	11440	10630	11970
598	173 480	40390	- 88860	-1 38750	06550	03040	- 04190	85810	09780	13590	10950
596	171 450	44020	-1 14000	-1 50340	00580	- 07150	- 06820	73570	07850	09560	09110
598	169 510	52550	-1 40050	-1 60360	02240	- 01540	- 05070	77520	06690	08390	08030
594	179 450	33640	- 24840	-1 04960	04470	- 00060	- 07230	73620	12020	11930	12020
	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 124/ 0 RN/L = 6 18 GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
900	189 580	- 62720	27360	-1 56830	04720	- 04910	- 00480	61900	- 05330	- 07800	- 02120
900	187 640	- 47400	07780	-1 45590	03450	- 07070	- 00580	59680	- 04120	- 06000	- 00990
900	185 640	- 33000	- 06110	-1 30260	- 00060	- 10540	02520	56330	- 01700	- 03120	00060
900	183 640	- 22310	17230	-1 21630	00820	- 11430	03150	42040	02230	00600	03590
900	181 540	- 09590	- 21720	-1 19080	05730	04330	02620	40610	04070	03490	04280
900	179 530	11142	- 13990	-1 24820	07010	.0830	00610	68530	04720	04820	05400
900	177 490	25920	- 04100	-1 38430	04770	04570	- 01200	59630	02910	04270	06260
900	175 490	36480	- 05990	-1 50750	04160	01580	- 00930	59680	00690	03050	07190
900	173 480	52070	- 01640	-1 61220	04870	01690	00910	58600	- 01280	02860	08010
900	171 410	65300	- 09790	-1 72230	04330	- 03110	02840	52540	- 03350	00520	07320
900	169 440	88180	- 25970	-1 82440	00820	- 04120	02190	60740	- 03770	- 00530	07550
900	175 510	03470	- 12520	-1 24840	05540	06690	02520	69110	04780	04880	05250
	GRADIENT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000

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OF POOR QUALITY



MSFC : WT604 (SAFE) SRB CLEAN W/RINGS (INCL. CIM.)

140771 112 JUL '51

## REFERENCE DATA

SRES	=	5030	SD	IN	XGRP	=	5.7210	IN	X5
LINEF	=	8000	IN		YGRP	=	0000	IN	Y5
GRF	=	8000	IN		ZGRP	=	0000	IN	Z5
SCALE	=	0055							

BETA - 100 PSI - 000  
NOZZLE - 250

## PARAMETRIC DATA

RUN NO	123/0	RM/L	6.59	GRADIENT INTERVAL	-5.03/	5.00
1	123/0	RM/L	6.59	GRADIENT INTERVAL	-5.03/	5.00

MAC	ALPHA	CMF	CLM4	CA	CTM	CYM	CBL	XCP/L	COMP	COMP2	COMP3
1 203	189 730	71280	1 79250	-2 22130	01450	- 02460	00930	60980	- 12730	- 13270	- 11970
1 203	187 760	- 50 740	1 47760	-2 14350	01240	- 01380	00420	60080	- 10440	- 11160	- 10330
1 203	185 830	- 30 520	1 15640	-2 15640	00730	- 09470	00940	60490	- 09150	- 09270	- 08600
1 203	183 640	- 1 7760	72660	2 02130	03490	- 10260	01320	91420	- 05010	- 08050	- 08050
1 203	181 620	00480	39630	2 06630	06340	- 10570	01230	04120	- 06 00	- 08440	- 08440
1 203	179 630	1 0390	2 00970	-2 00970	00380	- 14650	00050	53440	- 03400	- 07840	- 08390
1 203	177 470	20450	- 27610	2 16050	02890	- 14810	10240	60310	- 08090	- 07450	- 07880
1 203	175 430	40260	56750	2 22120	00550	- 12500	02050	61040	- 10710	- 08120	- 08650
1 203	173 350	06660	- 89050	-2 33360	01350	- 10596	00000	70740	- 10840	- 09150	- 10420
1 203	171 290	07640	- 1 24190	-2 42750	01140	- 07590	00260	71540	- 11590	- 10710	- 1040
1 203	162 340	90590	- 1 57170	-2 47422	05030	- 08810	01340	71470	- 10390	- 100	- 14700
1 203	159 650	21046	1 130	-2 09440	00435	- 13530	02460	54030	- 06260	- 07890	- 08050
1 203	157 580	00000	00000	00000	00000	- 00000	00000	00000	- 00000	- 00000	- 00000

CONC	EXP	GRADIENT INTERVAL	-S 007	S 09
0.00	118.2	• 5.99		

[illegible]

LABORATED SOURCE DATA. MSFC TWT 0.11. SA-BF

(R1H078) ( 10 JUL 75 )

WSEC TWT604 (SABF) SRB CLEAN W/RINGS (NOZ. OIM.)

## REFERENCE DATA

SREF	=	5030 SQ. IN.	XAPG	=	5.7210 IN. XS
LREF	=	.8000 IN.	YHRP	=	.0000 IN. YS
BREF	=	.8000 IN.	ZHRP	=	.0000 IN. ZS
SCALE	=	.0055			

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NZZLE	=	5.000			

CRIN NO. 255/ 0 DW/L = 5.05 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CL <sub>2</sub>	CA	CY1	CYNN	CBL	XCP/L	CBP1	CBP2	CBP3
.599	50 500	8. 07580	12. 94160	.38150	-.88130	.90530	-.04660	.45260	.00000	.00000	.00000
.599	52 420	8. 55190	13. 93170	.27180	-.43400	.40480	-.04190	.45050	.00000	.00000	.00000
.599	54 440	9. 21600	15. 04920	.16300	-.34480	-.57400	-.01410	.45020	.00000	.00000	.00000
.599	56 460	9. 76170	16. 13910	.05690	.26550	.17390	-.01790	.44850	.00000	.00000	.00000
.599	58 480	10. 20840	16. 76040	-.02960	.10440	-.23680	-.03110	.44940	.00000	.00000	.00000
.599	60 480	10. 68370	17. 14840	-.09400	.04170	.17820	-.04860	.45240	.00000	.00000	.00000
.599	62 500	11. 23560	17. 36120	-.14230	.10950	.43030	-.04150	.45730	.00000	.00000	.00000
.599	64 490	11. 66210	17. 45750	-.21800	-.21340	.06550	-.05720	.46130	.00000	.00000	.00000
.599	66 520	12. 10290	17. 53950	-.24040	-.33200	-.18920	-.03680	.46230	.00000	.00000	.00000
.599	68 540	12. 31640	18. 09970	.30640	-.44350	-.15320	-.04090	.46350	.00000	.00000	.00000
.599	70 350	12. 44350	17. 45800	-.32140	-.54590	-.66980	-.04450	.46890	.00000	.00000	.00000
.599	60 493	10. 69680	17. 19970	-.09340	.05660	.28450	-.06620	.45220	.00000	.00000	.00000
.599	62 500	11. 23560	17. 36120	-.14230	.10950	.43030	-.04150	.45730	.00000	.00000	.00000
.599	64 490	11. 66210	17. 45750	-.21800	-.21340	.06550	-.05720	.46130	.00000	.00000	.00000
.599	66 520	12. 10290	17. 53950	-.24040	-.33200	-.18920	-.03680	.46230	.00000	.00000	.00000
.599	68 540	12. 31640	18. 09970	.30640	-.44350	-.15320	-.04090	.46350	.00000	.00000	.00000
.599	70 350	12. 44350	17. 45800	-.32140	-.54590	-.66980	-.04450	.46890	.00000	.00000	.00000
.599	60 493	10. 69680	17. 19970	-.09340	.05660	.28450	-.06620	.45220	.00000	.00000	.00000
.599	62 500	11. 23560	17. 36120	-.14230	.10950	.43030	-.04150	.45730	.00000	.00000	.00000
.599	64 490	11. 66210	17. 45750	-.21800	-.21340	.06550	-.05720	.46130	.00000	.00000	.00000
.599	66 520	12. 10290	17. 53950	-.24040	-.33200	-.18920	-.03680	.46230	.00000	.00000	.00000
.599	68 540	12. 31640	18. 09970	.30640	-.44350	-.15320	-.04090	.46350	.00000	.00000	.00000
.599	70 350	12. 44350	17. 45800	-.32140	-.54590	-.66980	-.04450	.46890	.00000	.00000	.00000
.599	60 493	10. 69680	17. 19970	-.09340	.05660	.28450	-.06620	.45220	.00000	.00000	.00000
.599	62 500	11. 23560	17. 36120	-.14230	.10950	.43030	-.04150	.45730	.00000	.00000	.00000
.599	64 490	11. 66210	17. 45750	-.21800	-.21340	.06550	-.05720	.46130	.00000	.00000	.00000
.599	66 520	12. 10290	17. 53950	-.24040	-.33200	-.18920	-.03680	.46230	.00000	.00000	.00000
.599	68 540	12. 31640	18. 09970	.30640	-.44350	-.15320	-.04090	.46350	.00000	.00000	.00000
.599	70 350	12. 44350	17. 45800	-.32140	-.54590	-.66980	-.04450	.46890	.00000	.00000	.00000
.599	60 493	10. 69680	17. 19970	-.09340	.05660	.28450					

RUN NO. 254/ 0      RN/L = 6.36      GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC TWT604 (SABF) SRB CLEAN W/RINGS (NOZ. GIM.)

(R1H078) ( 10 JUL 75 )

## REFERENCE DATA

SRF	•	.5030	SO. IN.	YRPP	=	5.7210	IN. XS
LPF	=	.8000	IN.	YRPP	•	.0000	IN. YS
ZRPF	•	.8000	IN.	ZRPP	=	.0000	IN. ZS
SCALE	=	.0055					

BETA = .000 PHI = .000  
NOZZLE = 5.000

## PARAMETRIC DATA

RAIN NO.	253/0	RAIN/L	6.78	GRADIENT INTERVAL	-5.00/	5.00
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[illegible]

RUN NO.	228/ 0	RN/L = 7.10	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

MSFC TWT504 (SABF) SP8 CLEAN W/RINOS (NOZ. GIM.)

## REFERENCE DATA

SREF =	.5070 SQ. IN.	XMRP =	5.7210 IN. XS
LREF =	.8000 IN.	YMRP =	.0000 IN. YS
REF =	.8000 IN.	ZMRP =	.0000 IN. ZS

MACH	ALPHA	CMH	CLIM	CA	CYM	CYNM	CBL	XCF	CBP1	CBP2	CBP3
3.480	50 510	12 49880	9 20130	1 36940	- 14650	- 15120	- 02320	52330	00000	.00000	00300
3.480	52 430	13 01520	9 78520	1 34980	- 15490	- 15120	- 02650	52200	00000	.00000	00000
3.480	54 540	13 66750	10 56030	1 32240	- 17240	- 17020	- 01430	52030	00000	.00000	00600
3.480	56 470	14 22590	11 04040	1 30340	- 17840	- 15760	- 03190	52010	00000	.00000	00300
3.480	58 480	14 75910	11 51990	1 25950	- 19330	- 16320	- 01840	51970	.00000	00000	00300
3.480	60 490	15 25910	11 89310	1 21510	- 20750	- 18540	- 04830	51980	.00000	.00000	00000
3.480	62 520	15 73400	12 34480	1 16800	- 21530	- 20470	- 03740	51940	.00000	.00000	00300
3.480	64 510	16 17410	12 72860	1 12080	- 21300	- 17570	- 03910	51920	.00000	.00000	00600
3.480	66 560	16 61510	13 01240	1 05410	- 23470	- 17540	- 02920	51950	00000	.00000	00900
3.480	68 570	17 04220	13 26670	.99070	- 24870	- 20790	- 03390	51990	00000	.00000	00000
3.480	70 450	17 39340	13 48280	.9710	- 26190	- 20020	- 03500	52020	.00000	.00000	.00000
3.480	72 510	15 27440	12 00600	1 21140	- 19340	- 20450	- 04220	51920	00000	.00000	00000
3.480	74 510	15 27440	12 00600	.00000	.00000	.00000	.00000	00000	.00000	.00000	.00000

MSFC TWT604 (SABF) SRB CLEAN W/RINGS (NOZ. DIM.)

(R1H079) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030 SQ. IN.	XWRP =	5.7210 IN. XS
LREF =	.8000 IN.	YWRP =	.0000 IN. YS
BREF =	.8000 IN.	ZWRP =	.0000 IN. ZS
SCALE =	.0055		

## PARAMETRIC DATA

BETA = .000 PHI = .000  
NOZZLE = 5.000

RUN NO.	2721	0	RN/L	5.03	GRADIENT INTERVAL	-5.00/	5.00
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MACH	ALPHA	CNM	CLNM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.601	80 390	12 11440	12 13710	.35300	-.23580	.70810	-.03510	.50160	.00000	.00000	.00000
.601	82 260	12 29100	10 81880	.51830	-.03980	.42180	-.02950	.51160	.00000	.00000	.00000
.601	84 240	12 55710	9 83770	.60840	-.16150	83880	-.03160	.51950	.00000	.00000	.00000
.601	86 220	12 67610	9 10640	.66660	-.14870	44767	-.00860	.52480	.00000	.00000	.00000
.601	88 190	12 74370	8 71050	.77920	-.01260	-.35300	-.04910	.53400	.00000	.00000	.00000
.601	90 170	12 61580	6 54280	.75920	-.02460	1.13570	-.02190	.54110	.00000	.00000	.00000
.601	92 180	12 68480	5 81180	.74510	.02900	.39890	-.03620	.54600	.00000	.00000	.00000
.601	94 140	12 74890	5 20060	.65660	-.06340	24850	-.01660	.55010	.00000	.00000	.00000
.601	96 170	12 68910	4 66880	.53280	-.13710	1.13000	-.02330	.55340	.00000	.00000	.00000
.601	98 160	12 58900	4 16710	.38160	-.21020	-.04730	-.01910	.55640	.00000	.00000	.00000
.601	100 010	12 59810	3 34570	.39560	-.70450	1.67010	.00540	.56170	.00000	.00000	.00000
.601	90 170	12 63400	6 48150	.75510	-.03610	.14350	-.03590	.54150	.00000	.00000	.00000
GRACIENT		.00000	.00000	.00000	-.00300	.00000	.00000	.00000	.00000	.00000	.00000

RCV NO	273/ 0	RN/L = 6 34	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

PARAMETRIC DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055  
 BETA = .000  
 NOZZLE = 5.000  
 PHI = .000

REFERENCE DATA

RUN NO. 274/0 RN/L = 6.7% GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.196	80.460	18.96300	14.63470	.61170	-.25750	-.12220	.02780	.52040	.00000	.00000	.00000
1.196	82.340	19.17840	14.11600	.63250	-.23710	-.12760	.03540	.52310	.00000	.00000	.00000
1.196	84.320	19.35750	13.91130	.57130	-.24300	-.13830	.01780	.52470	.00000	.00000	.00000
1.196	86.300	19.57410	13.44930	.50160	-.22520	-.15050	.02030	.52730	.00000	.00000	.00000
1.196	88.240	19.63320	12.67940	.44750	-.23410	-.16770	.02490	.53070	.00000	.00000	.00000
1.196	90.240	19.65660	12.16780	.37480	-.20001	-.16420	.02430	.53290	.00000	.00000	.00000
1.196	92.220	19.66540	11.67290	.29420	-.26890	-.07560	.01710	.53490	.00000	.00000	.00000
1.196	94.210	19.65870	11.43140	.20780	-.23010	-.07340	.02760	.53590	.00000	.00000	.00000
1.196	96.220	19.61260	11.08900	.12150	-.26840	-.07910	.02660	.53840	.00000	.00000	.00000
1.196	98.210	19.55850	10.78840	.04690	-.29380	-.03120	.00950	.53690	.00000	.00000	.00000
1.196	100.100	19.56920	11.15040	-.07080	-.35080	-.04010	.00000	.53340	.00000	.00000	.00000
1.196	90.240	19.68160	12.05950	.37360	-.20390	-.16580	.01740	.53340	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 227/1 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.973	80.400	19.45360	13.70470	.73980	-.24410	-.09370	-.02630	.52590	.00000	.00000	.00000
1.976	82.290	19.58970	13.50150	.66620	-.24980	-.09790	-.02400	.52710	.00000	.00000	.00000
1.976	84.280	19.59750	13.31330	.59510	-.24120	-.13000	-.03060	.52820	.00000	.00000	.00000
1.976	86.280	19.79570	13.01430	.51760	-.23180	-.14130	-.02130	.52970	.00000	.00000	.00000
1.976	88.240	19.87580	12.61830	.44500	-.23180	-.15220	-.03510	.53160	.00000	.00000	.00000
1.976	90.240	19.87020	12.18710	.36980	-.23670	-.14780	-.02930	.53330	.00000	.00000	.00000
1.976	92.250	19.80570	11.74390	.29130	-.23680	-.16610	-.02940	.53500	.00000	.00000	.00000
1.976	94.210	19.75490	11.40240	.21040	-.23580	-.12470	-.01730	.53630	.00000	.00000	.00000
1.976	96.200	19.61290	10.96820	.11430	-.23210	-.13860	-.03320	.53770	.00000	.00000	.00000
1.976	98.200	19.46740	10.64740	.01480	-.24200	-.15760	-.02350	.53880	.00000	.00000	.00000
1.976	100.070	19.28630	10.34240	-.09210	-.24040	-.16700	-.01340	.53960	.00000	.00000	.00000
1.976	90.240	19.93340	12.18670	.37160	-.24090	-.13810	-.02590	.53350	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC TWT604 (SABF) SR6 CLEAN W/RINGS (NCZ CIM)

(R1H079) 1 10 JUL 75 1

REFERENCE DATA

SREF	=	5030	50. IN.	XWRP	=	5	7210	IN	XS
LREF	=	8000	IN.	YWRP	=	.	0000	IN.	YS
BREF	=	9000	IN.	ZWRP	=	.	0000	IN.	ZS
SCALE	=	0055							

BETA	-	000	PHI	-	000
NOZZLE	-	5 000			

### PARAMETRIC DATA

RUN NO. 281 / 0 RM/L = 5.25 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

RUN NO. 282/ 0 RN/L = 7.21 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

TABULATED SOURCE DATA, MSFC THT 604, SA-BF

DATE 10 JUL 75

'R1H0801 ( 10 JUL 75 )

MSFC THT604 (SABF) SRB CLEAN W/RINGS (NOZ 01M)

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
 LREF = .8000 IN. YMRP = .0000 IN. YS  
 BREF = .8000 IN. ZMRP = .0000 IN. YS  
 SCALE = .0055

BETA = .000  
 NOZZLE = .000

RUN NO. 250/ 0 RN/L = 5.03 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.590	129 500	6.65620	-5.33560	-1.76060	.66040	.55900	- .00740	.64690	.00000	.00000	.00000
.598	127 590	7.58370	-5.00660	-1.67900	.46660	.32340	- .00030	.63720	.00000	.00000	.00000
.596	125 580	8.54460	-4.50030	-1.58390	.54980	- .08100	.01310	.62630	.00000	.00000	.00000
.598	123 590	9.45580	-4.35580	-1.43450	.00770	- .58210	- .01550	.62100	.00000	.00000	.00000
.596	121 590	10.14920	-3.68650	-1.31380	-.52900	-.53400	- .02270	.61300	.00000	.00000	.00000
.598	119 580	10.56770	-2.86450	-1.14810	- .42560	-1.00980	- .02980	.60550	.00000	.00000	.00000
.596	117 580	10.98110	-2.08220	- .98890	- .10550	-1.92010	- .01020	.59880	.00000	.00000	.00000
.598	115 600	11.11350	-1.26820	- .80380	-.03800	- .46470	.00660	.59270	.00000	.00000	.00000
.596	113 550	11.59430	-1.06370	- .62320	.40840	2.62550	.00970	.59090	.00000	.00000	.00000
.598	111 570	12.02850	- .71850	-.50190	.31520	.60090	- .04050	.58820	.00000	.00000	.00000
.596	109 690	12.10070	- .55010	- .34670	.15520	1.14540	.01900	.59710	.00000	.00000	.00000
.598	119 580	10.45750	-3.06020	-1.98550	.60980	2.85610	.03290	.61720	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 251/ 0 RN/L = 6.32 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
902	129 270	10.76430	-3.58040	-1.73630	- .02820	- .26160	- .00090	.61050	.00000	.00000	.00000
902	127 340	11.43040	-3.79260	-1.61250	.12030	-.42480	- .00480	.61040	.00000	.00000	.00000
902	125 310	11.97340	-3.69620	-1.44480	.19010	- .58490	.00470	.60860	.00000	.00000	.00000
902	123 310	12.49630	-3.80000	-1.28250	.21390	- .29020	.01010	.60820	.00000	.00000	.00000
902	121 290	12.96450	-3.85740	-1.12000	.19130	.02370	.02160	.60760	.00000	.00000	.00000
902	119 290	13.40420	-3.66630	- .95170	.17220	.36610	.00970	.60570	.00000	.00000	.00000
902	117 280	14.05020	-3.06370	- .78210	.15590	.34130	.02420	.60120	.00000	.00000	.00000
902	115 300	14.34380	-2.42300	- .57170	.18410	.36120	.01770	.59710	.00000	.00000	.00000
902	113 280	14.58010	-2.07690	- .35530	.26980	.05940	.02530	.59490	.00000	.00000	.00000
902	111 290	14.96250	-1.57940	- .17080	.24210	.00850	.02520	.59200	.00000	.00000	.00000
902	109 420	15.08710	- .98340	- .01150	.24060	.03790	.02540	.58870	.00000	.00000	.00000
902	119 280	13.63140	-3.65560	- .96120	.13140	.15260	.02120	.60520	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC THT 604, SA-8F

PAGE 216

MSFC THT604 (SABF) SRB CLEAN W/RINGS (NOZ 31M)

(R1H080) (10 JUL 75)

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5 7210 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = 000 PHI = 000  
NOZZLE = 5 000

PARAMETRIC DATA

RUN NO. 252/ 0 RN/L = 6.73 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 202	129 260	13 24510	1 11450	-1.89080	20230	-1.16490	- 32570	.57630	00000	.00000	.00000
1 202	127 360	13 86800	1 61370	-1.72410	22390	-1.11610	- 01070	.57390	00000	.00000	.00000
1 202	125 340	14 55010	2 26720	-1.57170	23700	- 01150	- 32080	.57070	00000	.00000	.00000
1 202	123 390	14 58000	3 40580	-1.47570	24510	- 01370	- 01510	.56480	00000	.00000	.00000
1 202	121 390	15 51120	3 85380	-1.30430	26710	-1.2230	- 01500	.56310	00000	.00000	.00000
1 202	119 380	15 96550	4 19470	-1.12880	26090	-1.16480	- 00870	.56190	00000	.00000	.00000
1 202	117 370	16 40590	4 73900	-1.95460	25040	-1.25070	- 01090	.55980	00000	.00000	.00000
1 202	115 390	16 89010	5 13380	-1.78270	23920	-1.26320	- 00990	.55860	00000	.00000	.00000
1 202	113 370	17 19720	5 46640	-1.59180	23840	-1.29190	- 00220	.55740	00000	.00000	.00000
1 202	111 360	17 50280	5 62690	-1.42690	23670	-1.26090	- 01530	.55710	00000	.00000	.00000
1 202	109 470	17 79220	6 03560	-1.27180	24220	-1.27800	- 00370	.55670	00000	.00000	.00000
1 202	119 380	15 91870	4 19670	-1.12180	26020	-1.14990	- 00340	.55600	00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	.55500	00000	.00000	.00000

RUN NO. 229/ 1 RN/L = 7.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 940	129 360	12 36270	3 60260	-1.71890	16170	12620	00520	.55960	00700	.00000	.00000
1 940	127 450	13 03880	3 96830	-1.59370	16190	09040	00560	.55850	00730	.00000	.00000
1 940	125 430	13 76180	4 35870	-1.48440	18260	09810	- 01460	.55750	00000	.00000	.00000
1 940	123 420	14 48080	4 50300	-1.34650	19940	11740	- 00760	.55600	00000	.00000	.00000
1 940	121 410	15 10540	4 71210	-1.21230	21210	09780	- 00300	.55490	00000	.00000	.00000
1 940	119 390	15 68490	5 24590	-1.08940	22570	11920	- 00560	.55470	00000	.00000	.00000
1 940	117 380	15 24540	5 71350	-1.94920	21810	12240	- 00430	.55470	00000	.00000	.00000
1 940	115 410	16 67620	6 14330	-1.83880	23800	16130	- 02110	.55060	00000	.00000	.00000
1 940	113 330	17 15570	7 11520	-1.65990	25760	16480	- 00910	.54950	00000	.00000	.00000
1 940	111 380	17 68660	7 50480	-1.51460	26190	15950	- 01740	.54840	00000	.00000	.00000
1 940	109 510	18 05440	8 33150	-1.36220	27100	17340	- 01400	.54710	00000	.00000	.00000
1 940	119 450	15 19350	5 66110	-1.12500	21550	11790	- 01460	.54640	00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	00000	.54500	00000	.00000	.00000



REFERENCE DATA  
SREF = 5030 SQ. IN. XMRP = 5 7210 IN. XS  
LREF = 8000 IN. YMRP = 0000 IN. YS  
BREF = .8000 IN. ZMRP = .0010 IN. ZS  
SCALE = .0055  
BETA = .000 PHI = .000  
NOZZLE = 5 000

PARAMETRIC DATA

RUN NO 438/ 0 RN/L = 5 17 GRADIENT INTERVAL = -5.00/ 5 00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP3
2 740	129 560	11 83530	4 63560	-1 92460	12170	04500	05510	55140	00000
2 740	127 660	12 50540	5 13250	-1 79340	17730	-1 00730	06540	54990	00000
2 740	125 630	13 12290	5 57840	-1 66720	17780	07620	06680	54870	00000
2 740	123 630	13 73060	6 01750	-1 52210	10000	08560	06360	54760	00000
2 740	121 630	14 28600	6 44640	-1 37000	18210	10620	06320	54660	00000
2 740	119 620	14 88210	6 83850	-1 23430	19260	14870	05260	54590	00000
2 740	117 600	15 46690	7 16840	-1 08440	18830	13570	05800	54560	00000
2 740	115 610	16 00610	7 55110	-94110	19990	14740	05420	54490	00000
2 740	113 610	16 49250	7 90220	-79400	21180	16080	07870	54430	00000
2 740	111 590	16 94260	8 29160	-63330	22370	16180	05900	54350	00000
2 740	109 630	17 37320	8 7330	-50890	22640	16250	07370	54250	00000
2 740	119 620	14 84150	6 83660	-1 23780	18520	09440	06380	54590	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000

RUN NO 437/ 0 RN/L = 7 10 GRADIENT INTERVAL = -5 00/ 5 00									
MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP3
3 480	129 520	11 51520	4 23720	-1 91000	14700	03530	04880	55340	00000
3 480	127 640	12 13170	4 71540	-1 79460	15540	07530	05270	55170	00000
3 480	125 620	12 72720	5 16310	-1 66180	14930	06240	05190	55020	00000
3 480	123 610	13 30470	5 59950	-1 52070	16720	08250	-20050	54900	00000
3 480	121 630	13 87370	6 01930	-1 36720	16900	07550	07180	54790	00000
3 480	119 610	14 43360	6 39730	-1 22110	1760	07450	07480	54720	00000
3 480	117 600	15 03210	6 74830	-1 07220	17390	10280	3040	54670	00000
3 480	115 590	15 56410	7 06920	-92330	1750	09250	08460	54630	00000
3 480	113 630	16 02160	7 41440	-76410	18820	10370	08110	54560	00000
3 480	111 630	16 48340	7 76170	-61590	18320	11040	05800	54500	00000
3 480	109 630	16 93390	8 09900	-47790	22000	09430	07570	54430	00000
3 480	119 620	14 38210	6 28320	-1 22230	17270	09340	06780	5470	00000
GRADIENT		00000	00000	00000	00000	00000	00000	00000	00000

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PARAMETER DATA

REFERENCE DATA

SREF = 5.000 IN XMRP = 5.000 IN XS  
LREF = 5.000 IN YMRP = 5.000 IN YS  
BREF = 5.000 IN ZMRP = 5.000 IN ZS  
SCALE = 0.055

RUN NO 1417 0 RN/L = 4.36 GRADIENT INTERVAL = 5.00/ 5.00

MACH	ALPHA	CYH	CLHM	CA	CYM	CYH	CMH	CR	XCP	CBP1	CBP2	CBP3
600	146.180	3.8210	-1.83040	2.68590	51050	1.04250	-0.2340	62540	-1.480	14780	0.000	0.000
700	146.180	3.8210	-2.03470	2.75400	53970	4.5680	-0.3110	62540	-2.3450	18330	0.000	0.000
800	146.180	3.8210	-2.20130	2.81130	42760	4.5680	-0.3110	62540	3.4920	20150	0.000	0.000
900	146.180	3.8210	-2.37850	2.86800	32120	4.5680	-0.3110	62540	4.2040	25850	0.000	0.000
1000	146.180	3.8210	-2.55570	2.92400	16520	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1100	146.180	3.8210	-2.73290	2.97900	15950	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1200	146.180	3.8210	-2.91010	3.03400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1300	146.180	3.8210	-3.08730	3.08900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1400	146.180	3.8210	-3.26450	3.14400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1500	146.180	3.8210	-3.44170	3.19900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1600	146.180	3.8210	-3.61890	3.25400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1700	146.180	3.8210	-3.79610	3.30900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1800	146.180	3.8210	-3.97330	3.36400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
1900	146.180	3.8210	-4.15050	3.41900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2000	146.180	3.8210	-4.32770	3.47400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2100	146.180	3.8210	-4.50490	3.52900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2200	146.180	3.8210	-4.68210	3.58400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2300	146.180	3.8210	-4.85930	3.63900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2400	146.180	3.8210	-5.03650	3.69400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2500	146.180	3.8210	-5.21370	3.74900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2600	146.180	3.8210	-5.39090	3.80400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2700	146.180	3.8210	-5.56810	3.85900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2800	146.180	3.8210	-5.74530	3.91400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
2900	146.180	3.8210	-5.92250	3.96900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3000	146.180	3.8210	-6.09970	4.02400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3100	146.180	3.8210	-6.27690	4.07900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3200	146.180	3.8210	-6.45410	4.13400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3300	146.180	3.8210	-6.63130	4.18900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3400	146.180	3.8210	-6.80850	4.24400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3500	146.180	3.8210	-6.98570	4.29900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3600	146.180	3.8210	-7.16290	4.35400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3700	146.180	3.8210	-7.34010	4.40900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3800	146.180	3.8210	-7.51730	4.46400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
3900	146.180	3.8210	-7.69450	4.51900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4000	146.180	3.8210	-7.87170	4.57400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4100	146.180	3.8210	-8.04890	4.62900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4200	146.180	3.8210	-8.22610	4.68400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4300	146.180	3.8210	-8.40330	4.73900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4400	146.180	3.8210	-8.58050	4.79400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4500	146.180	3.8210	-8.75770	4.84900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4600	146.180	3.8210	-8.93490	4.90400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4700	146.180	3.8210	-9.11210	4.95900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4800	146.180	3.8210	-9.28930	5.01400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
4900	146.180	3.8210	-9.46650	5.06900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5000	146.180	3.8210	-9.64370	5.12400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5100	146.180	3.8210	-9.82090	5.17900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5200	146.180	3.8210	-9.99810	5.23400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5300	146.180	3.8210	-10.17530	5.28900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5400	146.180	3.8210	-10.35250	5.34400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5500	146.180	3.8210	-10.52970	5.39900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5600	146.180	3.8210	-10.70690	5.45400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5700	146.180	3.8210	-10.88410	5.50900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5800	146.180	3.8210	-11.06130	5.56400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
5900	146.180	3.8210	-11.23850	5.61900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6000	146.180	3.8210	-11.41570	5.67400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6100	146.180	3.8210	-11.59290	5.72900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6200	146.180	3.8210	-11.77010	5.78400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6300	146.180	3.8210	-11.94730	5.83900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6400	146.180	3.8210	-12.12450	5.89400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6500	146.180	3.8210	-12.30170	5.94900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6600	146.180	3.8210	-12.47890	6.00400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6700	146.180	3.8210	-12.65610	6.05900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6800	146.180	3.8210	-12.83330	6.11400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
6900	146.180	3.8210	-13.01050	6.16900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7000	146.180	3.8210	-13.18770	6.22400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7100	146.180	3.8210	-13.36490	6.27900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7200	146.180	3.8210	-13.54210	6.33400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7300	146.180	3.8210	-13.71930	6.38900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7400	146.180	3.8210	-13.89650	6.44400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7500	146.180	3.8210	-14.07370	6.49900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7600	146.180	3.8210	-14.25090	6.55400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7700	146.180	3.8210	-14.42810	6.60900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7800	146.180	3.8210	-14.60530	6.66400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
7900	146.180	3.8210	-14.78250	6.71900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8000	146.180	3.8210	-14.95970	6.77400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8100	146.180	3.8210	-15.13690	6.82900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8200	146.180	3.8210	-15.31410	6.88400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8300	146.180	3.8210	-15.49130	6.93900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8400	146.180	3.8210	-15.66850	6.99400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8500	146.180	3.8210	-15.84570	7.04900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8600	146.180	3.8210	-16.02290	7.10400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8700	146.180	3.8210	-16.20010	7.15900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8800	146.180	3.8210	-16.37730	7.21400	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
8900	146.180	3.8210	-16.55450	7.26900	0.455	4.5680	-0.3110	62540	4.5680	27080	0.000	0.000
9000	146.180	3.8210	-16.73170	7.3240								

MSFC THTC04 (SABF) SAB CLEAN W/KINGS (NOZ. GIM.)

014081) 10 JUL 75)

## REFERENCE DATA

SREF	=	5030	SQ	IN	XREP	=	5	7210	IN	XS
LREF	=	8000	IN		YREP	=		0000	IN	YS
BREF	=	6000	IN		ZREP	=		0000	IN	ZS
SCALE	=	0055								

### PARAMETRIC DATA

BETA - 000 PSI - 000  
NOZZLE - 5 000

RUN NO	143/ 0	RM/L	6 59	GRADIENT INTERVAL	- 5.00/ 5.00
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MACH	ALPHA	CM1	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1 197	147 450	7 16230	-2 44500	-2 84740	-0.2510	21360	00640	.61120	-37480	-35030	-38780
1 197	145 380	8 12760	-2 05600	-2 78020	18900	-	-00440	50400	-31270	-37630	-38030
1 197	143 180	9 28340	-1 34880	-2 74280	04450	-	00760	59520	-40730	-28490	-40180
1 197	140 940	10 46880	-61810	-2 63740	-06890	-	01010	58820	-38810	-37710	-39950
1 197	138 110	11 27280	-60610	-2 53500	04310	05610	-	58780	-37960	-39150	-36730
1 197	136 560	12 08160	-35440	-2 42560	00880	-	-01170	58580	-36570	-36530	-36530
1 197	134 440	12 82820	-78730	-2 25080	11420	-	00000	58840	-36780	-37200	-35170
1 197	132 330	13 53680	-90550	-2 11070	11350	-	00980	58880	-37010	-37430	-34390
1 197	130 160	14 22490	-115810	-1 96150	10730	-	00680	59300	-40690	-38270	-31910
1 197	128 060	14 79690	-1 80230	-1 80230	11920	-	016380	58970	-52730	-37190	-27010
1 197	126 040	15 58260	-48750	-1 62690	11760	-	00290	58590	-61450	-31450	-23450
1 197	123 650	12 04950	-34660	-2 34660	08440	-	-01470	58630	-34230	-36540	-33480
CPA 150	04420	04420	03600	04420	03600	03600	00000	00000	99990	99990	00420

RUN NO	119	0	RUN/L	7	00	GRADIENT	INTERVAL	-5	00/	5	00
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[illegible]



MSFC TW1604 (SABF) SSB CLEAN W/RINGS (NOZ GIM.)

Q: H0321 (10 JUL 75)

## REFERENCE DATA

SREF	•	5030	SO. IN	XMRP	•	5	7210	IN. XS
LCRF	•	8000	IN	YMRP	•	.	0000	IN YS
BCRF	•	8000	IN	ZMRP	•	0000	IN. ZS	
SCALE	•	0055						

	BETA	PMI	
	000	000	000
NOZZLE	5 000		

### PARAMETRIC DATA

RAJ NO. 140/ 0 RM/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO 1397 0 RN/L = 6 18 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, HSFC TWT 804, SA-BF

A/E 21

HSFC WT604 (SAHF) SRB CLEAN WATINGS (NOZ GIM)

R-1082

JUL 75

## REFERENCE DATA

SRF = 5030 SG IN XMRP = 5 7210 IN XS  
 CRF = 8000 IN XMRP = 5000 IN YS  
 RMR = 8000 IN XMRP = 5000 IN ZS  
 SCALE = 0.555

## PARAMETRIC DATA

BETA = 5.00  
 NOZZLE = 5.00  
 PHI = 5.00

RUN NO 1387 0 MW = 6.59 GRADIENT INTERVAL = 5.00/ 5.00

MACH	ALPHA	CMF	CLMM	CA	CYM	CYMH	CBL	KCP L	CBF1	CBF2	CBF3
1.96	169 850	95060	-1 82840	-2 62440	06150	02430	01370	71430	-15.90	-14170	-18770
1.96	168 830	1 17750	-1 91290	-2 54330	00430	04000	00310	71370	-17.30	-15970	-18190
1.96	164 770	1 53510	-2 25100	-2 81360	10750	-14070	01800	70180	-17.70	-16650	-19150
1.96	164 680	50 70	-2 84210	-2 71280	11550	-13730	01020	69160	-19.40	-16470	-19450
1.96	167 570	2 41220	2 75440	2 77180	15120	01490	07700	67700	-21.750	-16780	-20430
1.96	168 410	3 21470	-3 24710	2 05250	-1124	1733	02010	67000	-23.10	-16710	-20430
1.96	168 270	3 01500	-3 87170	-2 87450	-25330	19180	01060	65570	-24.30	-16730	-20710
1.96	164 080	4 14610	-3 39060	2 42710	07390	-6620	02320	64380	-30.30	-21580	-2886
1.96	161 380	5 38740	-3 31510	-2 83210	04430	-14000	01500	63360	-32.90	-24760	-32620
1.96	149 720	8 25470	-3 26400	-2 81680	07140	-7400	03010	62330	-34.20	-32060	-35320
1.96	147 670	7 22720	-2 82300	-2 80700	05150	-14850	01630	61300	-36.750	-34290	-38320
1.96	158 370	3 12750	-3 27320	-2 80980	-22170	-18140	01000	60880	-25.090	-22180	-37740
GRAD ENT		10000	00000	00100	00100	00000	00100	00000	00100	00000	00000

RUN NO 1387 0 MW = 6.59 GRADIENT INTERVAL = 5.00/ 5.00

MACH	ALPHA	CMF	CLMM	CA	CYM	CYMH	CBL	KCP	CBF	CBF2	CBF3
1.98	169 840	84490	-1 31340	-2 64500	-10580	04510	01450	70770	-15.30	-1442	-1840
1.98	168 830	1 32410	-1 54710	-2 67260	-16300	-10240	-10160	67860	-17.30	-15210	-19300
1.98	164 770	1 86300	-1 40810	-2 70300	-41390	-85000	00630	64760	-18.40	-1630	-18170
1.98	162 550	2 43480	-1 55910	-2 70430	-64710	-44250	00170	63440	-19.70	-1600	-17480
1.98	160 400	3 12370	-1 71700	-2 63820	-18740	-24720	-00130	62400	-17.00	-1500	-16470
1.98	157 640	3 71840	-1 74110	-2 10420	-17980	-25300	-1480	60700	-18.40	-1470	-15770
1.98	156 470	4 45870	-1 64120	-2 62730	-04390	55600	00170	59700	-21.20	-217	-14740
1.98	154 000	5 24860	-1 29500	-2 42140	-01670	50440	00170	58700	-23.10	-1670	-13830
1.98	151 810	5 96080	04380	-2 04680	02740	08270	00170	57300	-24.40	-170	-12340
1.98	149 450	6 57350	51460	2 10670	01470	-00760	0030	56300	-27.40	-210	-10860
1.98	147 680	7 21110	37550	-2 04740	00520	-22510	00170	54700	-24.70	-1500	-10230
1.98	158 400	3 75990	-09110	2 04780	-18700	27300	00170	53700	-21.40	-170	-9300
GRADIENT		00000	00100	00000	00000	00000	00000	00100	00100	00100	00000

DATE 10 JUL 75

STABULATED SOURCE DATA, MSFC TWT 604, SA-8F

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MSFC TWT604 (SABF) SRB CLEAN W/RINGS (NOZ. GIM.)

(R1H082) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. XS
LREF	=	.8000	IN.	YMRP	=	.0000	IN. YS
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. ZS
SCALE	=	.0055					

ETA = .000 PHI = .000  
NOZZLE = 5.000

### PARAMETRIC DATA

RUN NO.	160/ 0	RN/L =	5.08	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO.	161/ 0	RN/L =	6.92	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]



MSFC TWT604 (SABF) SRB CLEAN W/RINGS (NOZ. GIM.)

(R1H083) ( 10 JUL 75 )

## REFERENCE DATA

SREF	=	.5030	SQ. IN.	XMRP	=	5.7210	IN. X5
LREF	=	.8000	IN.	YMRP	=	.0000	IN. Y5
BREF	=	.8000	IN.	ZMRP	=	.0000	IN. Z5
SCALE	=	.0055					

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	5.000			

RUN NO.	120/ 0	RN/L =	4.92	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO.	121/ 0	RN/L	6.21	GRADIENT INTERVAL	-5.00/ 5.00
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[illegible]

MSFC TWT604 (SABF) SR8 CLEAN W/RINOS (NOZ. QIM.) (R1H083) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030	SO.IN.	XRRP =	5.7210	N. X5
LREF =	.8000	IN.	YRRP =	.0000	N. Y5
BREF =	.8030	IN.	ZRRP =	.0000	N. Z5
SCALE =	.0055				

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	5.000			

RUN NO. 122/ 0 RN/L = 6.61 3GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.201	189.730	-724.70	1.81180	-2.06970	0.2560	-0.3950	-0.01580	.78730	-0.10280	-0.11470	-0.10070
1.201	187.760	-51760	1.45950	-2.07500	0.2490	-0.08600	-0.01000	.81340	-0.09090	-0.09090	-0.08630
1.201	189.680	-33620	1.10700	-0.99770	0.2300	-0.08060	0.06660	.85190	-0.07660	-0.07410	-0.07300
1.201	183.630	-14470	.74220	-2.04350	-0.00200	-0.09670	-0.03480	1.01070	-0.07280	-0.07280	-0.06990
1.201	181.580	.07580	.38380	-2.13860	0.2830	-0.07200	-0.00790	1.17040	-0.07620	-0.07240	-0.07580
1.201	179.520	.17250	1.3420	-2.20240	0.3010	-0.69430	0.1030	.51990	-0.07120	-0.06950	-0.06990
1.201	177.500	.20740	-0.18750	-2.25010	0.0520	-0.14510	0.2550	.65710	-0.07830	-0.07410	-0.07660
1.201	175.440	.37740	-0.42290	-2.31750	0.0110	-0.09700	0.1800	.67480	-0.08440	-0.07850	-0.08660
1.201	173.350	.54560	-0.69060	-2.41150	0.2510	-0.11320	0.0210	.68660	-0.08880	-0.08630	-0.11170
1.201	171.300	.74010	-1.09670	-2.50230	-0.00200	-0.09590	0.1980	.70430	-0.09590	-0.09590	-0.12760
1.201	169.330	.94070	-1.51820	-2.56060	0.6310	-0.05580	0.2120	.71500	-0.10830	-0.10430	-0.3750
1.201	179.500	.20870	.11130	-2.20610	0.2430	-0.09580	0.1886	.53990	-0.07840	-0.07330	-0.07460
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00300	.00000	.00000	.00000	.00000

RUN NO. 117/ 0 RW/L = 7.01 GR/OIENT INTERVAL = -5.00/ 5.00

[illegible]

(814083) (10 JUL 75)

MSFC TWT604 (SA8F) SR8 CLEAN W/RINGS (NOZ. OIM.)

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	5.000			

BETA -  
NOZZLE -

## REFERENCE DATA

SREF =	.5030 S...IN.	XPRP =	5.7210 IN. X5
LREF =	.8000 IN.	YPRP =	.0000 IN. Y5
BREF =	.8000 IN.	ZPRP =	.0000 IN. Z5
SCALE =	.0055		

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LREF = .8000 IN.      YMAP = 0000 IN. VS

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BRF - .000 IN. ZRP - .000 IN. ZS

SCALE = .0055

RUN NO.	189/ 0	RH/L =	5.10	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 170/ 0 RN/L = 6.94 GRADIENT INTERVAL = -5.00/ 5 00

[illegible]

DATE 10 JUL 75  
TABULATED SOURCE DATA, MSFC TWT 804, SA-8F  
MSFC TWT604 (SA8F) SRB WITH PROT. W/O HEAT SHO.

(R1H084) ( 10 JUL 75 )

PARAMETRIC DATA

BETA = .000  
NOZZLE = .000  
PHI = .000

REFERENCE DATA

LREF = .5030 50. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0.55

RUN NO. 570/ 0 RN/L = 5.19 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.596	109 840	12.30460	-1.18740	-89420	-2.26850	.93980	-.03610	.59120	.00000	.00000	.00000
.596	107 950	12.33770	-.78710	-.74000	-1.98140	.86050	-.03070	.58850	.00000	.00000	.00000
.596	105 50	12.44690	-.65610	-.55570	-1.49840	.64470	-.00830	.58770	.00000	.00000	.00000
.596	103 970	12.54940	.14650	-.35690	-1.40380	-.16220	.00860	.58240	.00000	.00000	.00000
.596	101 980	12.63930	1.10020	-.07970	-1.31440	-.26390	-.01560	.57630	.00000	.00000	.00000
.596	99 980	12.64820	1.97250	.17730	-1.23390	-.56780	.00870	.57060	.00000	.00000	.00000
.596	98 000	12.51950	2.82000	.34270	-1.25410	-.42960	-.00880	.56510	.00000	.00000	.00000
.596	96 010	12.64630	3.74580	.50620	-1.24950	-.20390	.00860	.55920	.00000	.00000	.00000
.596	94.030	12.65920	4.56760	.62370	-1.26310	-.04730	-.00760	.55390	.00000	.00000	.00000
.596	92.050	12.70910	5.68580	.70440	-1.25890	.22410	-.02020	.54690	.00000	.00000	.00000
.596	90.170	12.77550	6.75460	.74800	-1.25440	.35740	-.00330	.54020	.00000	.00000	.00000
.596	100 000	12.66110	1.97700	.15080	-1.29370	-.52130	-.00390	.57060	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 369/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
.898	109 620	14.74300	-1.74000	-.72670	-.54950	.51960	-.07120	.59300	.00000	.00000	.00000
.898	107 740	14.96610	-.88110	-.55820	-.51830	.62920	-.06690	.58820	.00000	.00000	.00000
.898	105 770	15.18870	.09640	-.33770	-.55090	.66760	-.05710	.58290	.00000	.00000	.00000
.898	103 600	15.43020	1.22090	-.16230	-.55860	.74810	-.06830	.57690	.00000	.00000	.00000
.898	101 830	15.56710	2.22210	.00680	-.51280	.77280	-.03290	.57170	.00000	.00000	.00000
.898	99 850	15.74480	3.55810	.16590	-.52990	.73700	-.02850	.56490	.00000	.00000	.00000
.898	97 900	16.01140	5.12410	.31120	-.56950	.75520	-.04340	.55730	.00000	.00000	.00000
.898	95 940	16.03450	6.52340	.44750	-.57230	.68140	-.03110	.55020	.00000	.00000	.00000
.898	93 980	16.07800	7.73390	.55180	-.59510	.64370	-.03540	.54410	.00000	.00000	.00000
.898	92.000	16.29100	9.05370	.60890	-.60100	.55760	-.04330	.53800	.00000	.00000	.00000
.898	90 150	16.38310	10.06780	.60830	-.64940	.45900	-.08540	.53310	.00000	.00000	.00000
.898	99 870	15.88460	3.80220	.14400	-.54760	.76310	-.02040	.56480	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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MSFC INT604 (SABF) SRE WITH PROT. W/O HEAT SHD.

(R14085) 10 JUL 75

## REFERENCE DATA

SREF	=	.5030	SQ IN.	XMRP	=	.5	7210	IN.	XS
LREF	=	.8000	IN	YMRP	=	.0000	IN.	YS	
BREF	=	.8000	IN	ZMRP	=	.0000	IN.	ZS	
SCALE	=	.0055							

### PARAMETRIC DATA

BETA	-	000	PHI	-	000
NOZZLE	-	000			

RUN NO.	356/ 0	RN/L =	5.05	GRADIENT INTERVAL =	-5.00/	5.00
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MACH	ALPHA	CMH	CLMH	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
598	129 460	9 46200	-4 89270	-2 35710	-4 56630	-1 90080	-0.08320	.62560	.00000	.00000	.00000
598	127 550	9 89550	-4 62770	-2 23380	-4 42990	-3 08740	-0.0790	.62150	.00000	.00000	.00000
598	125 560	10 20940	-3 91600	-2 08400	-4 74600	-5 34450	-0.05080	.61440	.00000	.00000	.00000
598	123 560	10 69660	-3 70460	-1 94670	-4 50900	-4 29330	-0.05430	.61160	.00000	.00000	.00000
598	121 560	11 07750	-3 33260	-1 79910	-3 34370	-3 89720	-0.03980	.60790	.00000	.00000	.00000
598	115 560	11 36300	-3 08870	-1 64880	-3 52040	-2 66660	-0.05180	.60560	.00000	.00000	.00000
598	117 530	76910	-3 21250	-1 49450	-3 52200	-1 09180	-0.02610	.60560	.00000	.00000	.00000
598	115 550	11 38550	-2 85430	-1 33060	-3 25410	-6 70000	-0.02110	.60280	.00000	.00000	.00000
598	113 560	12 20960	-2 41440	-1 15370	-2 91780	-1 12360	-0.03560	.59950	.00000	.00000	.00000
598	111 540	12 31950	-1 93040	-99190	-2 57680	-1 23360	-0.00560	.59620	.00000	.00000	.00000
598	109 650	12 51220	-1 40200	-85080	-2 33590	-6 15400	-0.01240	.59250	.00000	.00000	.00000
598	119 560	11 27290	-3 20560	-1 64110	-3 40160	-2 66230	-0.03180	.60660	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	-3.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO.	3671	0	RN/L	=	6.35	GRADIENT INTERVAL	=	-5.00	5.00
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[illegible]



MSFC TWT604 (SABF) SRB WITH PROT. W/O HEAT SHD.

(R14086) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	5030 SQ. IN.	XREP =	5.7210 IN. Y5
LEF =	.8000 IN.	YREP =	.0000 IN. Y5
BREF =	.8000 IN.	ZREP =	.0000 IN. Z5
SCALE =	.0055		

BETA -  
NOZZON -

### PARAMETRIC DATA

RUN NO.	451 / 1	RN/L = 5.25	GRADIENT INTERVAL = -5.00 / 5.00
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[illegible]

RUN NO.	452/ 0	RN/1.	4.98	GRADIENT INTERVAL	-5 00/ 5 00
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[illegible]

NSFC TMT604 (SABF) SRB WITH PROT. W/O HEAT SHD.

(R14086) ( 10 JUL 75 )

## REFERENCE DATA

SREF	•	5030	SQ	IN.	XRRP	•	5.7210	IN.	XS
LREF	•	3000	IN		YRRP	•	0000	IN.	YS
BREF	•	8000	IN.		ZRRP	•	0000	IN.	ZS
SCALE	•						0055		

### PARAMETRIC DATA

BETA	=	.000	PHI	=	.000
NOZZLE	=	.000			

RUN NO. 453/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

TRAN NO.	439/ 0	RN/L =	6.99	GRADIENT INTERVAL =	-5.00/ 5 00
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[illegible]





DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 804, SA-8F

PAGE 233

MSFC TWT604 (SABF) SRB WITH PROT W/O HEAT SHD.

(RIM087) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA = .000  
NOZZLE = .000

PARAMETRIC DATA

RUN NO. 454/ 0 RN/L = 5.25 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.399	169 660	.62210	-.90010	-1.57500	-.04170	.20480	-.07500	.70140	.00000	.00000	.00000
.399	167 760	.86310	-.99060	-1.66190	-.03090	-.17430	-.04050	.67700	.00000	.00000	.00000
.399	165 710	1.27310	-1.09650	-1.77710	-.11040	-.40840	-.04800	.65360	.00000	.00000	.00000
.399	163 680	1.68720	-1.16030	-1.93840	-.17340	-.63680	-.06850	.63950	.00000	.00000	.00000
.399	161 650	2.10570	-1.15250	-2.09570	-.30330	-1.07640	-.08920	.62800	.00000	.00000	.00000
.399	159 620	2.53120	-1.22360	-2.26760	-.58650	-1.56250	-.07170	.62280	.00000	.00000	.00000
.399	157 570	2.87840	-1.05360	-2.43910	-.82650	-2.30520	-.07790	.61320	.00000	.00000	.00000
.399	155 570	3.31320	-.84140	-2.59630	-1.08640	-3.19140	-.08300	.60410	.00000	.00000	.00000
.399	153 540	3.74910	-.69940	-2.74870	-1.30250	-3.68770	-.10400	.59860	.00000	.00000	.00000
.399	151 510	4.18750	-.46890	-2.84570	-1.52470	-4.06030	-.11420	.59250	.00000	.00000	.00000
.399	149 590	4.60560	-.22430	-2.81030	-1.58360	-4.24150	-.08030	.58730	.00000	.00000	.00000
.399	159 620	2.49430	-1.16130	-2.22180	-.54320	-1.55120	-.06050	.62140	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 455/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CMM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
.598	169 630	71160	-.83320	-1.59820	-.02660	.11590	-.04480	.67890	.00000	.00000	.00000
.598	167 720	98790	-.97490	-1.70220	-.04370	-.13850	-.03650	.66390	.00000	.00000	.00000
.598	165 660	1.36690	-1.07400	-1.83260	-.12800	-.29970	-.02500	.64750	.00000	.00000	.00000
.598	163 620	1.72470	-1.15220	-1.98330	-.20840	-.64960	-.03810	.63790	.00000	.00000	.00000
.598	161 580	2.14950	-1.09600	-2.15080	-.37750	-1.11280	-.06070	.62500	.00000	.00000	.00000
.598	159 540	2.58770	-1.13990	-2.31560	-.71130	-1.67350	-.03870	.61930	.00000	.00000	.00000
.598	157 480	2.98710	-1.21410	-2.47420	-1.08260	-2.12860	-.06470	.61650	.00000	.00000	.00000
.598	155 460	3.38990	-.95000	-2.62430	-1.32770	-3.03170	-.04920	.60620	.00000	.00000	.00000
.598	153 420	3.87820	-.75940	-2.78780	-1.59870	-3.54500	-.07750	.59930	.00000	.00000	.00000
.598	151 380	4.37010	-.47620	-2.90180	-1.94220	-3.97130	-.03580	.59230	.00000	.00000	.00000
.598	149 440	4.91310	-.14460	-2.96470	-2.32160	-4.14090	-.07440	.58580	.00000	.00000	.00000
.598	159 540	2.57080	-1.19500	-2.30840	-.71940	-1.63560	-.05660	.62130	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

LABULATED SOURCE DATA, MSFC TWT 604, SA-BF

(R14087) , 10 JUL 75

MSFC T41604 (SABF) SRB WITH PROT. W/O HEAT SHD.

## REFERENCE DATA

5. SREF	•	5030	SU	IN.	XRRP	•	5.7210	IN	XS
6. LREF	•	8000	IN		YRRP	•	.0000	IN	YS
7. BREF	•	8000	IN		ZRRP	•	.0000	IN.	ZS
8. SCALE	•	0055							

## PARAMETRIC DATA

BETA	000	PHI	000
NOZZLE	372000		

RUN NO.	440/ 0	RM/L = 7 12	GRADIENT	INTERVAL = -5 00/	5.00
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MACH	ALPHA	CNM	CLM1	CA	CYM	CYM1	CBL	XCP/L	CBP1	CBP2	CBP3
1 958	169 440	1 02630	- 95660	-2 70210	- 03800	-24030	01070	65150	-00000	00000	00000
1 956	165 450	1 42700	- 87650	-2 13730	- 03850	01340	- 01020	63750	-00000	00000	00000
1 958	165 310	1 87830	- 96780	-2 82980	- 117810	- 37240	- 01050	62540	-00000	00000	00000
1 958	163 190	2 45380	- 84200	-2 90300	- 30270	- 61830	01240	51140	-00000	00000	00000
1 958	161 050	3 07890	- 31360	-2 15690	- 34320	- 77950	- 02510	59700	-00000	00000	00000
1 958	158 930	3 82260	- 08480	-3 08280	- 37490	- 118940	- 03110	50540	-00000	00000	00000
1 958	156 790	4 51350	- 22170	-3 19610	- 40810	- 108080	- 04360	57940	-00000	00000	00000
1 958	154 670	5 15620	- 61490	-3 27580	- 43980	- 71660	- 04650	57360	-00000	00000	00000
1 958	152 540	5 80300	- 90670	-3 26070	- 42840	- 71840	- 05270	57060	-00000	00000	00000
1 958	150 420	6 43210	- 140750	-3 35030	- 45840	- 27580	- 06570	56570	-00000	00000	00000
1 958	148 370	7 20690	- 96550	-3 46490	- 47580	- 19420	- 03700	56140	-00000	00000	00000
1 958	146 940	8 84120	- 04700	-3 08360	- 38380	- 125230	- 02550	56240	-00000	00000	00000
GRAB147		00000	00000	-00030	-00000	00000	00000	00000	00000	00000	00000

RUN NO. 449/ 0    RN'L = 7 05    GRADIENT INTERVAL = -5 00/ 5 00

MACH	ALPHA	CNM	CLIM	CA	CYM	CYH	CBL	XCP/L	CBP1	CBP2	CBP3
3 480	169 620	76390	- 09290	-2 57300	- 02470	- 01610	- 03210	59300	00000	00000	50000
3 480	167 680	1 08710	0 09350	-2 62590	- 12120	- 11470	00070	57630	00000	00000	50000
3 480	165 620	1 44580	1 41690	-2 72670	- 14160	- 11760	- 02280	55980	00000	00000	50000
3 480	163 560	1 86380	61160	-2 81540	- 08640	- 18420	- 02730	55660	00000	00000	50000
3 480	161 510	2 31000	92830	-2 90830	- 113810	- 22430	- 01660	55360	00000	00000	50000
3 480	159 440	2 80900	1 16000	-2 98160	- 15760	- 18270	- 03090	55140	00000	00000	50000
3 480	157 360	3 32420	1 34990	-3 11390	- 17780	- 15030	- 02910	55000	00000	00000	50000
3 480	155 310	3 83900	1 62920	-3 22040	- 19920	- 07050	- 02900	54870	00000	00000	50000
3 480	153 230	4 35600	1 93500	-3 31110	- 16380	- 04440	- 07700	54760	00000	00000	50000
3 480	151 130	4 86340	2 09600	-3 33280	- 18220	- 01360	- 03110	54950	00000	00000	50000
3 480	149 170	5 32710	2 21660	-3 39000	- 16390	- 03670	- 02490	55110	00000	00000	50000
3 480	159 450	2 79100	1 21430	-3 00660	- 115820	- 22050	- 00160	54730	00000	00000	50000
GRADIENT		00000	00000	00000	00000	00000	00000	000 0	00000	00000	00000

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SABF

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MSFC TWTECH (SABF) SRB WITH PROT. W/O HEAT SHD.

(R14088) ( 10 JUL 75 )

REFERENCE DATA

SREF = 5030 SQ IN. XMRP = 5.7210 IN. XS  
LREF = 8000 IN. YMRP = .0000 IN. YS  
BREF = 9000 IN. ZMRP = .0000 IN. ZS  
SCALE = .0055

BETA =  
NOZZLE =

PARAMETRIC DATA

RUN NO. 371/ 0 FN/L = 5.14 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CB	XCP/L	CBP1	CBP2	CBP3
598	109 840	11.91840	-1.36530	-1.85660	45770	2.26140	-0.2320	.58590	.00000	.00000	.00000
598	107 970	12.08470	-1.04800	-1.69530	37200	1.32520	-0.0750	.58270	.00000	.00000	.00000
598	105 960	12.30880	-.86510	-1.55990	37150	1.51800	-.04410	.57760	.00000	.00000	.00000
598	103 970	12.35340	1.21740	-1.35480	31750	1.36380	-0.01930	.57530	.00000	.00000	.00000
598	101 960	12.51720	1.88890	-1.29000	31840	2.01060	-0.00570	.57110	.00000	.00000	.00000
598	99 990	12.58360	2.20600	0.93400	30460	1.65310	-0.04250	.56910	.00000	.00000	.00000
598	98 000	12.76520	2.98920	2.62000	0.04880	1.92670	.00770	.56430	.00000	.00000	.00000
598	96 000	12.70580	3.21090	4.78100	2.19900	2.19500	-0.01010	.56280	.00000	.00000	.00000
598	94 020	12.96330	4.32440	5.91800	-2.17200	1.56330	-0.04000	.55610	.00000	.00000	.00000
598	92 030	12.94650	4.97310	7.22600	-1.25030	4.93100	0.19500	.55200	.00000	.00000	.00000
598	90 150	13.28440	6.03930	7.06900	-1.25530	1.15280	-0.11800	.54580	.00000	.00000	.00000
598	99 980	12.57170	2.19900	0.96900	1.48140	1.48790	-0.02620	.54910	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 372/ 0 FN/L = 6.52 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CB	XCP/L	CBP1	CBP2	CBP3
900	109 840	15.10080	-5.06220	-7.42800	-1.44200	1.40910	-0.04760	.58610	.00000	.00000	.00000
900	107 780	15.33430	4.10900	-5.67800	-0.86900	1.31810	-0.05080	.58120	.00000	.00000	.00000
900	105 740	15.45060	1.23920	-3.69500	0.19800	1.18970	-0.03610	.57680	.00000	.00000	.00000
900	103 810	15.61580	2.09040	-1.31800	0.33400	1.00340	-0.04940	.57240	.00000	.00000	.00000
900	101 850	15.78110	3.02050	0.46300	0.75200	94540	-0.03010	.56780	.00000	.00000	.00000
900	99 860	16.00510	4.09540	2.29200	1.36000	94500	-0.02310	.56250	.00000	.00000	.00000
900	97 920	16.07340	5.13480	3.77700	1.69800	83710	-0.01400	.55730	.00000	.00000	.00000
900	95 900	16.17290	6.01040	5.20500	1.11100	63090	-0.01130	.55310	.00000	.00000	.00000
900	93 450	16.33430	7.06030	6.26800	1.86900	58840	-0.00930	.54810	.00000	.00000	.00000
900	91 460	16.55620	7.99470	6.97800	1.67400	60770	-0.01280	.54350	.00000	.00000	.00000
900	90 640	16.45070	8.82210	7.04700	1.63900	65620	-0.03070	.53960	.00000	.00000	.00000
900	93 870	16.16690	4.26170	2.05600	1.38100	96970	-0.02780	.56170	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

MSFC TWT604 (SABF) SR8 WITH PROT. W/O HEAT SHD.

(R14089) ( 10 JUL 75 )

## REFERENCE DATA

SREF =	.5030 SQ. IN.	XMRP =	5.7210 IN. X5
LREF =	.8000 IN.	YMRP =	.0000 IN. Y5
BREF =	.8000 IN.	ZMRP =	.0000 IN. Z5
SCALE =	.0055		

BETA	=	.000	PHI	=	90.000
NOZZLE	=	.000			

## PARAMETRIC DATA

RUN NO. 374/ 0 RW/L = 5.16 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLM1	CA	CYM	CYMH	CBL	XCP/L	CBF-1	CBF-2	CBF-3
.597	129.470	5.64560	-7.84400	-2.41180	.27750	-	- .00010	.69670	.00000	.00000	.00000
.597	127.560	6.20070	-7.86460	-2.27180	.250	- .36180	-.02470	.68540	.00000	.00000	.00000
.597	125.540	7.40880	-7.56450	-2.13890	.153390	-.56880	-.02560	.66670	.00000	.00000	.00000
.597	123.550	8.36130	-6.50150	-2.00110	.16750	.13410	.00780	.64680	.00000	.00000	.00000
.597	121.570	9.20740	-5.40090	-1.84910	.155460	.38530	-.00760	.63120	.00000	.00000	.00000
.597	119.560	10.01880	-4.36950	-1.68310	.152240	.00060	.00990	.61910	.00000	.00000	.00000
.597	117.550	10.64780	-3.49470	-1.51740	.128640	-.35340	- .01320	.61010	.00000	.00000	.00000
.597	115.570	11.08010	-2.73370	-1.31420	.96860	-.09040	.0330	.60350	.00000	.00000	.00000
.597	113.590	11.49740	-1.94820	-1.14020	.75770	.74570	-.01120	.59120	.00000	.00000	.00000
.597	111.570	11.72950	-1.03370	-.88970	.65270	2.51550	-.00290	.58060	.00000	.00000	.00000
.597	109.680	11.76980	-.67570	-.72650	.50960	1.40490	- .01160	.58910	.00000	.00000	.00000
.597	119.550	10.00880	-4.46020	-1.67550	.141940	-.00080	- .00230	.61370	.00000	.00000	.00000
GRADIENT				.00000	.00000	.00000		.90000	.00000	.00000	.00000

RUN NO. 373/ 0 RN/L = 6 53 GRADIENT 'INTERVAL = -5 00/ 5 00

[illegible]

TABLE 10 SOURCE DATA, MSFC TWT 604, SA-BF

DATE 10 JUL 75

(R1H089) (10 JUL 75)

MSFC TWT604 (SABF) SRB WITH PROT. W/O HEAT SHD

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ IN. XPRP = 5.7210 IN. XS  
 LREF = .8000 IN. YPRP = .0000 IN. YS  
 BREF = .8000 IN. ZPRP = .0000 IN. ZS  
 SCALE = .0055

BETA = .000 PHI = 90.000  
 NOZZLE = .000

RUN NO. 375/ 0 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYH	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
1.196	129.270	13.18860	1.9150	-2.69550	-1.1730	-1.0900	1.00460	-0.4530	.57600	.00000	.00000	.00000
1.196	127.350	13.72260	1.12000	-2.59360	-1.0900	-1.0900	1.07660	-0.5000	.57550	.00000	.00000	.00000
1.196	125.340	14.37800	1.31940	-2.32090	-0.7390	-0.7390	1.00080	-0.7040	.57470	.00000	.00000	.00000
1.196	123.330	14.80980	1.93340	-2.13110	-0.7320	-0.7320	.97040	-0.5410	.57280	.00000	.00000	.00000
1.196	121.340	15.46150	2.51800	-1.94360	-0.7570	-0.7570	.97840	-0.4580	.57010	.00000	.00000	.00000
1.196	119.350	15.99230	3.26200	-1.75730	-0.8720	-0.8720	1.02810	-0.6120	.56670	.00000	.00000	.00000
1.196	117.360	16.36130	4.35740	-1.61440	-0.9040	-0.9040	1.04820	-0.6000	.56160	.00000	.00000	.00000
1.196	115.380	16.81220	4.92550	-1.42760	-0.8910	-0.8910	1.09400	-0.5610	.55950	.00000	.00000	.00000
1.196	113.390	17.16320	5.40520	-1.22620	-0.8960	-0.8960	1.07800	-0.5300	.55770	.00000	.00000	.00000
1.196	111.400	17.50510	5.93330	-1.04680	-0.9070	-0.9070	1.08560	-0.5180	.55570	.00000	.00000	.00000
1.196	109.510	17.79930	6.53310	-.88230	-0.9120	-0.9120	1.09310	-0.5080	.55340	.00000	.00000	.00000
1.196	119.350	15.81940	3.59550	-1.80980	-0.9820	-0.9820	1.05750	-0.6080	.56480	.00000	.00000	.00000
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ORIGINAL PAGE 10  
 OF POOR QUALITY

MSFC TWTB04 (SABF) SSB WITH PROT. W/O HEAT SHD.

(R1H090) ( 10 JUL 75 )

## REFERENCE DATA

SRF	=	.530 SQ. IN.	XRP	=	5.7210 IN. XS
REF	=	.8000 IN.	YRP	=	.0000 IN. YS
REF	=	.8000 IN.	ZRP	=	.0000 IN. ZS
SCALE	=	.0055			

### PARAMETRIC DATA

BETA	=	.000	PHI	=	90.000
NOZZLE	=	.000			

RUN NO. 457/ 1 RN/L = 5.25 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 456/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5 00/ 5 00

[illegible]

TABULATED SOURCE DATA, MSFC TNY 604, SA-BF

DATE 10 JUL 75

(RIH090) ( 10 JUL 75 )

MSFC TWT504 (SABF) SRB WITH PROT. W/O HEAT SHO.

PARAMETRIC DATA

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS BETA = .000 PHI = 90.000  
 LREF = .8000 IN. YMRP = .0000 IN. YS NOZZLE = .000  
 BREF = .8000 IN. ZMRP = .0000 IN. ZS  
 SCALE = .0055

RUN NO. 442/ 0 RN/L = 7.10 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
1.961	148.370	7.00980	2.15640	-3.57630	-1.16660	.44140	-.06590	.55830	.00000	.00000	.00000
1.961	146.380	7.57500	2.28520	-3.64230	-2.11160	.30340	-.06800	.55880	.00000	.00000	.00000
1.961	144.240	8.26920	2.63660	-3.66180	-1.18130	.20730	-.05650	.55740	.00000	.00000	.00000
1.961	142.070	9.06290	3.05250	-3.63460	-1.18200	.19810	-.05510	.55590	.00000	.00000	.00000
1.961	139.960	9.72680	3.31040	-3.50680	-1.17060	.22510	-.04960	.55560	.00000	.00000	.00000
1.961	137.750	10.53760	3.43720	-3.37540	-1.17970	.31490	-.06610	.55680	.00000	.00000	.00000
1.961	135.590	11.27730	3.55820	-3.15620	-1.17080	.28780	-.06200	.55760	.00000	.00000	.00000
1.961	133.470	11.99220	3.61080	-3.01490	-1.17910	.34200	-.06090	.55880	.00000	.00000	.00000
1.961	131.280	12.71300	3.72840	-2.80520	-1.1360	.32990	-.06610	.55940	.00000	.00000	.00000
1.961	129.100	13.44070	3.74770	-2.60930	-1.15520	.32740	-.06740	.56060	.00000	.00000	.00000
1.961	127.070	14.05650	3.75590	-2.44440	-1.15000	.30570	-.04600	.56160	.00000	.00000	.00000
1.961	137.820	10.43190	3.40420	-3.34700	-1.14490	.19450	-.06390	.55670	.00000	.00000	.00000
1.961	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 447/ 0 RN/L = 7.07 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMH	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	149.080	5.59490	2.39520	-3.68910	-1.11720	.13300	-.05650	.54840	.00000	.00000	.00000
3.480	147.090	6.21720	2.53200	-3.73800	-1.11860	.09980	-.05470	.55010	.00000	.00000	.00000
3.480	144.960	6.92820	2.16330	-3.38430	-1.13090	.09330	-.04620	.55790	.00000	.00000	.00000
3.480	142.860	7.59130	2.12620	-3.27480	-1.13060	.07100	-.02330	.56050	.00000	.00000	.00000
3.480	140.760	8.26360	2.24920	-3.23540	-1.14100	.08430	-.03560	.56120	.00000	.00000	.00000
3.480	138.640	8.91200	2.46750	-3.18490	-1.12830	.08430	-.02740	.56080	.00000	.00000	.00000
3.480	136.590	9.55600	2.74240	-3.10400	-1.12340	.04430	-.00470	.56000	.00000	.00000	.00000
3.480	134.570	10.22030	2.92330	-2.99240	-1.11830	.03400	.02610	.56000	.00000	.00000	.00000
3.480	132.400	10.89350	3.08460	-2.85810	-1.12340	.05570	-.02890	.56030	.00000	.00000	.00000
3.480	130.340	11.47180	3.58530	-2.75840	-1.12830	.05450	-.03130	.55790	.00000	.00000	.00000
3.480	128.350	12.05130	3.71070	-2.56730	-1.12350	.08390	-.00890	.55830	.00000	.00000	.00000
3.480	138.670	8.92840	2.44930	-3.18320	-1.12680	.03540	-.02290	.56100	.00000	.00000	.00000
3.480	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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TABLED SOURCE DATA, MSFC TWT 604, SA-8F

MSFC TWT604 (SABF) SRB WITH PROT. W/O HEAT SHD.

(R1H091) ( 10 μL 75 )

## REFERENCE DATA

SREF =  
 LREF =  
 BREF =  
 SCALE =

LREF = .8000 IN.

BREF - 8000 IN.

SCALE = .0055

5.7210	IN.	X5
.0000	IN.	Y5
.0000	IN.	Z5

SA NI 0000 IN. YS

5Z NI 0000 .

BETA " "

NOZZLE " "

31770N

## PARAMETRIC DATA

90.000

RUN NO. 458/ 0 RM/L = 5.26 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO.	441/ 0	RN/L = 7.17	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA, MSFC TWT 604, SA-BF

PAGE 241

MSFC TWT604 (SABF) SRB WITH PROT W/O HEAT SHD.

(RIH091) ( 10 JUL 75 )

REFERENCE DATA

SREF = .5030 SQ IN. XMRP = 5 7210 IN. XS  
LREF = .8000 IN. YMRP = 0000 IN. YS  
BREF = 8000 IN. ZMRP = 0000 IN. ZS  
SCALE = 0055

BETA = .000 PHI = 90 000  
NOZZLE = 000

PARAMETRIC DATA

RUN NO. 448/ 0 RN/L = 7.04 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
3.480	169.610	69060	-2.1780	-2.58900	-1.05780	-24820	.00230	60910	.00000	.00000	.00000
3.480	167.660	1.07350	-1.00910	-2.65570	-1.10210	-20140	-.02130	58410	.00000	.00000	.00000
3.480	165.630	1.40760	.48450	-2.75550	-1.13980	-24830	.00410	.55530	.00000	.00000	.00000
3.480	163.570	1.80930	.54250	-2.78940	-1.15200	-11640	-.01830	55890	.00000	.00000	.00000
3.480	161.510	2.24690	.63160	-2.90760	-1.2710	.14130	-.03420	.56040	.00000	.00000	.00000
3.480	159.450	2.73230	1.13940	-3.00970	-1.09490	20570	-.02900	54930	.00000	.00000	.00000
3.480	157.360	3.26070	1.39220	-3.13860	-1.11260	13120	.00350	54850	.00000	.00000	.00000
3.480	155.310	3.77470	1.52670	-3.24900	-1.13110	.15320	-.00380	55040	.00000	.00000	.00000
3.480	153.230	4.32360	1.71010	-3.45490	-1.11060	.21380	.01890	55110	.00000	.00000	.00000
3.480	151.150	4.85360	1.72680	-3.56980	-1.13390	.16550	.01870	55430	.00000	.00000	.00000
3.480	149.150	5.40220	1.90740	-3.62820	-1.12850	.17300	.01100	.55460	.00000	.00000	.00000
3.480	153.450	2.77660	1.14630	-3.02560	-1.1050	.16510	.04410	.54970	.00000	.00000	.00000
GRADIENT		00000	00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

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OF POOR QUALITY

DATE 10 JUL 75

MODULATED SOURCE DATA, MSFC TH 604, SA-BF

35

+SFC TWT504 (SABF) SR3 WITH PROT. W/O HEAT SHD.

56. 76 01 ) ( 10 21 75

## REFERENCE DATA

SREF = 5030 SQ. IN.      XMRP = 5.7210 IN. XS  
 LREF = 8000 IN.        YMRP = .000 IN. YS  
 GREF = 8000 IN.        ZMRP = .000 IN. ZS  
 SCALE = .0055

### PARAMETRIC DATA

BETA	=	000	PHI	=	160 000
NOZZLE	=	.000			

RUN NO.	379/ 0	RN/L =	5 15	GRADIENT INTERVAL =	-5.00/	5.00
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MACH	ALPHA	CNM	CLMM	CA	CYM	CYMM	CBL	XCP/L	CBP1	CBP2	CBP3
596	107.920	12.57530	-1.24360	-7.5780	2.93520	1.19340	.02610	59140	.00000	.00000	.00000
596	105.930	12.73750	-.75440	-.56870	2.37470	.06880	.02110	.58820	.00000	.00000	.00000
596	103.990	12.89410	.37080	.37080	2.30220	.78110	.03870	.58100	.00000	.00000	.00000
596	101.970	13.00430	1.44310	-.14310	2.24710	1.26040	-.00430	57430	.00000	.00000	.00000
596	97.980	13.03640	3.27540	.26370	2.19860	1.25970	.10030	56290	.00000	.00000	.00000
596	96.020	13.06990	4.42130	.40050	2.09890	1.19890	.01620	55580	.00000	.00000	.00000
596	94.040	13.11870	5.20500	54120	2.05100	1.26320	-.00460	55100	.00000	.00000	.00000
596	90.160	13.08400	6.70490	80090	1.85300	.51890	.00450	54160	.00000	.00000	.00000
596	90.980	12.95200	2.31350	04800	2.14610	1.25420	.00590	56880	.00000	.00000	.00000
596	92.050	13.12410	5.94780	.68700	1.96370	1.02710	-.00520	54640	.00000	.00000	.00000
596	95.980	12.98310	2.31470	.08300	2.14150	1.12960	.01110	56890	.00000	.00000	.00000
596	109.810	12.50790	-1.65370	-.91190	3.23530	.14400	.02040	53420	.00000	.00000	.00000
GRADIENT		00000	.00000	.00000	00000	.00000	.00000	52000	.00000	.00000	.00000

RUN NO. 320 / 0 RN/L 6.50 GRADIENT INTERVAL -5.00/ 5.00

[illegible]

(R1H093) ( 10 JUL 75 )

MSFC THT804 (SABF) SRB WITH PROT. W/O HEAT SHD.

PARAMETRIC DATA

BETA = .000 PHI = 180.000  
NOZZLE = .000

REFERENCE DATA

SREF = .5030 SQ. IN. XMRP = 5.7210 IN. XS  
LREF = .8000 IN. YMRP = .0000 IN. YS  
BREF = .8000 IN. ZMRP = .0000 IN. ZS  
SCALE = 0095

RUN NO. 378/ 0 RN/L = 5.20 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYH	CYH	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
600	129 460	9 49760	-4.75480	-2.36140	4 76720	2.53230	.08850	.62420	.00000	.00000	.00000	.00000
600	127 560	9 61410	-4.37170	-2.22880	4 58090	3.83260	.07350	.61830	.00000	.00000	.00000	.00000
600	125 560	10 36730	-3.87620	-2.10300	4 53840	4.88740	.08020	.61390	.00000	.00000	.00000	.00000
600	123 560	10 78110	-3.53690	-1.93970	4 87830	5 42380	.0863	.61010	.00000	.00000	.00000	.00000
600	121 550	11 38250	-3.35250	-1.79550	5 12140	4 60960	.0554	.60740	.00000	.00000	.00000	.00000
600	119 550	11 56310	-3.30190	-1.63550	4 59640	3 46160	.045	.50670	.00000	.00000	.00000	.00000
600	117 530	11 76360	-3.21690	-1.47010	4 17510	2 82830	.05730	.60570	.00000	.00000	.00000	.00000
600	115 550	11 91450	-3.09740	-1.27670	3 99290	1 61510	.03890	.60460	.00000	.00000	.00000	.00000
600	113 550	12 22140	-2.91630	-1.13140	3 83200	.54840	.03250	.60280	.00000	.00000	.00000	.00000
600	111 550	12 32930	-2.52010	-1.95640	3 38320	.12240	.02260	.60000	.00000	.00000	.00000	.00000
600	109 560	12 46350	-2.15050	-82560	3 09070	.18820	.03550	.59740	.00000	.00000	.00000	.00000
600	119 550	11 55670	-3 30630	-1 63120	4 57290	3 30060	.06120	.60670	.00000	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 377/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CNH	CLMH	CA	CYH	CYH	CYNH	CBL	XCP/L	CBP1	CBP2	CBP3
901	129 200	11 08400	-5 52430	-2 50400	2 44050	1 64510	.09510	.62400	.00000	.00000	.00000	.00000
901	127 280	11 58520	-5 65790	-2 34600	2 41940	1 86070	.10700	.62320	.00000	.00000	.00000	.00000
901	125 250	12 20020	-5 85930	-2 14170	2 36230	1 80190	.08830	.62250	.00000	.00000	.00000	.00000
901	123 240	12 79940	-5 86350	-1 94880	2 14840	1 19230	.07530	.62070	.00000	.00000	.00000	.00000
901	121 220	13 27640	-5 81420	-1 74740	1 83140	30030	.07850	.61910	.00000	.00000	.00000	.00000
901	119 220	13 55890	-5 42030	-1 54020	1 70980	03540	.08450	.61590	.00000	.00000	.00000	.00000
901	117 220	13 54250	-4 69400	-1 38210	1 61000	.17920	.08950	.61060	.00000	.00000	.00000	.00000
901	115 240	14 35210	-4 07440	-1 19490	1 53620	.13640	.09510	.60650	.00000	.00000	.00000	.00000
901	113 250	14 71960	-3 39080	-1 0260	1 55350	-1.11610	.09580	.60220	.00000	.00000	.00000	.00000
901	111 250	15 13840	-2 44000	-89670	1 50760	-1.15070	.07190	.59650	.00000	.00000	.00000	.00000
901	109 240	15 38910	-1 50710	-66110	1 52130	-2.0920	.07350	.59140	.00000	.00000	.00000	.00000
901	119 240	13 69160	-5 11250	-1.60000	1 70540	-1.10940	.08060	.61380	.00000	.00000	.00000	.00000
GRADIENT		00000	00000	00000	00000	00000	.00000	.00000	.00000	.00000	.00000	.00000

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(S1493) (10 JUL 75)

### PARAMETRIC DATA

BETA	-	.000	PHI	-	180 000
NOZZLE	-	.000			

RUN NO.	376/ 0	RN/L =	6.98	GRADIENT INTERVAL =	-5 00/	5.00
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[illegible]

DATE 10 JUL 75

TABLED SOURCE DATA, MSFC TWT 604, SA-BF

(R1H094) ( 10 JUL 75 )

MSFC T11604 (SABF) SBB WITH PROT. W/O HEAT SHD.

### PARAMETRIC DATA

BETA = 000 PHI = 180.003  
NOZZLE = 000

## REFERENCE DATA

SREF	=	5030	SQ. IN	XMRP	=	5	7210	IN.	XS
LREF	=	8000	IN	YMRP	=		0000	IN	YS
BREF	=	8000	IN	ZMRP	=		.0000	IN.	ZS
SCALE	=						0055		

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RUN NC 459/ 0 RM/L = 6 69 GRADIENT INTERVAL = -5 00. 5 00

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PLACH	ALPHA	CMH	GLMM	CA	CYM	CYM*	CBL	XCP/L	CBP1	CBP2	CBP3
1 193	148.170	7 65570	-1.56660	-3 64690	.78830	55970	05530	50020	00000	00000	00300
1 193	146.170	8 63370	-1 01320	-3 61430	90460	21770	07790	59290	00000	00000	03.70
1 193	147.360	9 54620	-89020	-3 52660	92850	60320	.09410	59100	00000	00000	00300
1 193	147.670	10 33320	-89260	-3 40520	1 00450	.75690	.10600	59040	.00000	00000	.00300
1 193	139.620	11 19090	-79610	-3 30270	1.09540	.75080	12300	12300	00000	00000	00300
1 193	137.420	12 05660	-62320	-3 17390	1.12890	.71710	.12330	58890	00000	00000	00300
1 193	137.740	12 75070	-1.04810	-3 03120	1 13490	.72840	.13300	59110	00000	00000	00300
1 193	133.110	13 43490	-1.48930	-2 88700	1.16260	.71700	.14580	.59240	00000	00300	.003
1 193	130.340	14 04560	-1.56060	-2 76090	1 15360	.69640	.14920	.59250	00000	00000	.00300
1 193	126.870	14 54450	-2 13450	-2 56260	1.14480	.62290	.15550	59530	00000	00000	00300
1 193	126.810	15 14240	-2 23230	-2 34540	1 13780	.43950	12900	59540	00000	00000	00300
1 193	137.440	12 04330	-4.5330	-3 18920	1 12050	.65190	12620	58670	00000	00000	.00300
1 193	137.440	12 04330	-4.5330	-3 18920	1 12050	.65190	12620	58670	00000	00000	.00300

RAN NO. 4-3-0 RN/L 7 13 GRADIENT INTERVAL - 5 00/ 5 00

[illegible]

22, 23, 24

(R:HOE) (56 m. 75)

### PARAMETRIC DATA

BETA = .000 PM1 = 180.000  
NOZZLE = 000

[illegible]

DATE 10 JUL 75

TABULATED SOURCE DATA. MSFC TWT 604. SA-8F

PAGE: 24

MSJC TWT604 (SAFE) SRS WITH PROT. W/O HEAT SHD.

(R1H095) 10 JUL 75 )

## REFERENCE DATA

CRF	•	5030 IN.	•	X99P	•	5.7210 IN.	XS
LRF	•	8000 IN.	•	V 9P	•	.0000 IN.	YS
GRF	•	8000 IN.	•	Z99P	•	.0000 IN.	ZS
SCALE	•					.0055	

### PARAMETRIC DATA

BETA = .000 PHI = 180.000  
NOZZLE = .000

RUN NO	444/ 0	RN/L =	7.11	GRADIENT INTERVAL =	-5.00/	5.00
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[illegible]

RUN NO. 145/ 0 RM/L = 7.06 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]